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(54) Title: DOCUMENT DELIVERY SYSTEM FOR AUTOMATICALLY PRINTING A DOCUMENT ON A PRINTING DEVICE

(57) Abstract: A document is operatively coupled to a printing device, either directly or through a network such as the Internet. A print schedule is stored that keeps track of when a document should be printed on the printing device. When the print schedule indicates the document should be printed, the document is automatically transmitted to the printing device without user intervention. The document can be stored on an electronic device, such as a personal computer connected to the printing device, or can be stored on a document server accessible to the printing device through the Internet. A user profile is stored that contains information about the recipient of the document, such as name, email address, household income, and interests. Since advertising can also be included in the document, the user profile can also be used to select advertising likely to be of interest to the user to be included in the personalized document. A product can be subsidized for a user, based on the information contained in the user profile. Likewise, printable media such as paper can also automatically be sent to user. Alternatively, coupons for free or discounted products such as those described above can be mailed, sent electronically, or otherwise distributed to the user.

DOCUMENT DELIVERY SYSTEM FOR AUTOMATICALLY PRINTING A DOCUMENT ON A PRINTING DEVICE

Field of the Invention

This invention relates to the printing field. More particularly, this invention is a document delivery system for automatically printing a document on a printing device.

Background of the Invention

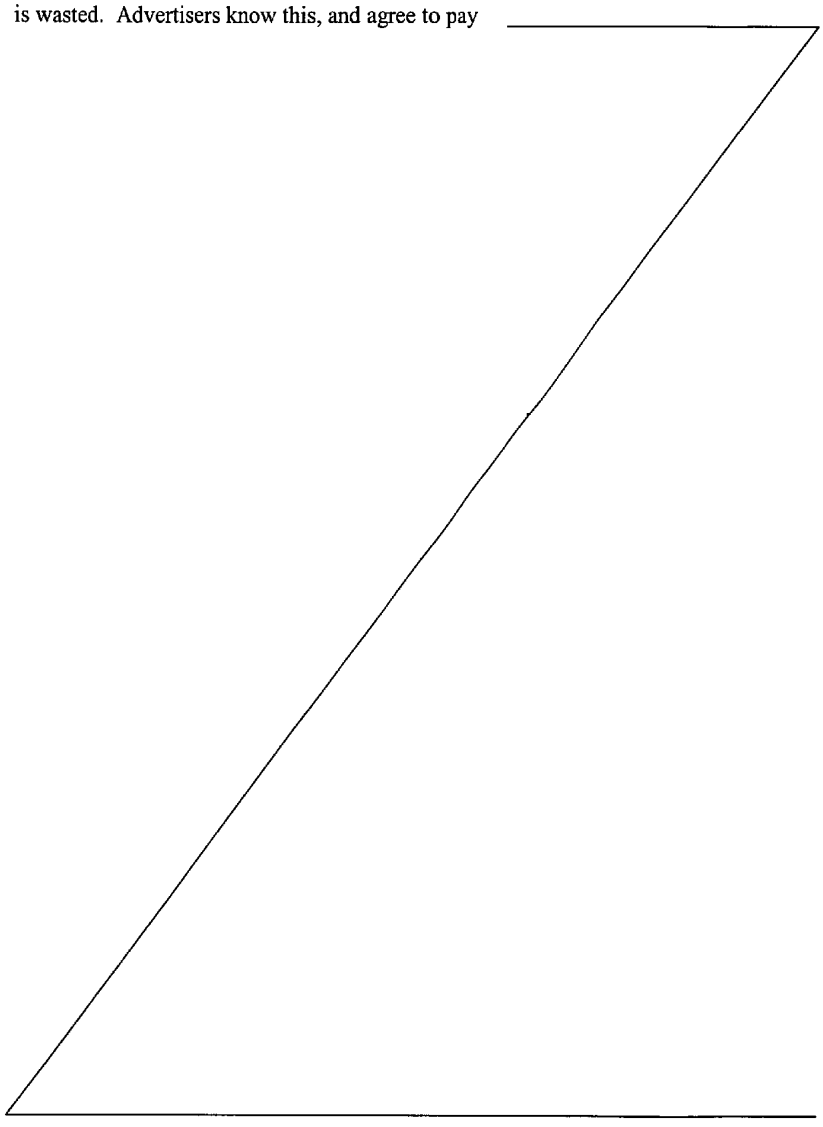
Any discussion of the prior art throughout the specification should in no way be considered as an admission that such prior art is widely known or forms part of common general knowledge in the field.

In the mid 1400's, Johann Gutenberg revolutionized how information is disseminated through his invention of the movable type press. With the publication of the Mazarin Bible, documents which were once held in the exclusive domain of a chosen few were now widely available to the masses. Nearly 550 years later, the mass media revolution that Gutenberg started is alive and well, complete with newspapers such as the New York Times and the Washington Post, magazines such as Newsweek and Sports Illustrated, and literally thousands upon thousands of other lesser known publications.

While these thousands of publications cover a wide range of interests, from news to sports to fashion to model rocketry, they have one thing in common: they are intended to be read by a mass market. Unlike the pre-Gutenberg days, where a document would literally be read by only one person or a very small number of people, it is not economically viable for today's publications to have such a small readership, due at least in part to high marketing, production and distribution costs. In fact, many of today's publications are funded to a very large extent by the advertising contained within them. These advertisers are attracted to publications that can consistently deliver a large, reliable audience of consumers that will be exposed to their advertising.

While this mass market publication model has worked well for hundreds of years, it is not without its problems. One such problem is that a typical reader of a publication has a wide variety of interests, and no single mass market publication will be able to satisfy all these interests. For example, a reader who is interested in international news, golf, fly fishing, Genealogy, and computers may have to subscribe to several

different publications to satisfy these interests. Of course, since these publications are intended for a mass market, they will also contain a significant amount of material that our reader is not interested in and will not read. It goes without saying that if there is a significant amount of material a reader isn't reading, there is a significant amount of advertising the reader isn't reading either – as well as a significant amount of paper that is wasted. Advertisers know this, and agree to pay



considerably less to a mass market magazine or newspaper per 1000 exposures to their ad than they would pay to a direct-mail generator that can provide a more specific guarantee that the people exposed to their ad are of a demographic group that will be much more likely to read their ad and be interested in it.

In addition, it is neither cost-effective nor time effective for most readers to subscribe to and/or read a large number of publications. Generally, the typical reader will only subscribe to a few publications that are of the most interest to them. The reduced readership level of the publications our typical reader chooses not to subscribe to, even though he would be interested in at least some of the editorial and advertising content contained inside, means that the publication receives less subscription and advertising revenue than they otherwise would. If many other readers make the same decision, the continued health of the publication may be in jeopardy, and the publication may be forced to go out of business. In fact, many publications do go out of business yearly for failing to attract a sustaining number of advertisers and readers – even if there are a large number of readers that would be interested in reading their publication, and a corresponding number of advertisers anxious to have these readers exposed to their ads. In general, publications that fail to attract a substantial mass market of people willing to pay for and/or read them cease publication. This is a shame, since many of these publications would enrich the diversity of information available to all readers, and would provide an avenue for lesser known writers and artists to practice their wares.

In more recent years, a new type of publication has emerged: the electronic publication. Readers of these publications typically sign onto the Internet through their computer, and read the publications online. Some of these publications, such as CNN.com and pointcast.com, allow users to state personal preferences on what type of material they want to read. Often, these personalized electronic publications include advertising, usually in the form of a banner ad that is placed on the top of the screen.

While these electronic publications have been an interesting development in the distribution of information, they still represent a tiny fraction of the information that is published under the more traditional post-Gutenberg model. Many readers of these electronic publications complain that they are very difficult to read, especially for long periods of time. While it might be convenient for a reader to sign onto the Internet to look at the CNN.com web site for a brief summary of late breaking news, this reader would most likely only spend a few minutes at the site, and would likely still subscribe to the more traditional print media such as Newsweek or the Washington Post. They would also likely spend significantly more time reading the more traditional printed publication than they would spend reading the electronic

publication, and correspondingly, spend more time being exposed to the ads in the traditional printed publication. Accordingly, printed publications continue to flourish today – more than five centuries after Gutenberg made them possible.

While these printed publications have certainly benefited modern society, no significant attempt has been made thus far to solve the underlying problems with these publications discussed above.

Summary of the Invention

According to a first aspect, the present invention provides a document delivery system having a document capable of being operatively coupled to a printing device, a method of printing the document on the printing device comprising the steps of:

storing a print schedule;

storing a user profile;

automatically requesting, without user intervention, the document based on the print schedule;

transmitting the document to the printing device;

causing automatic printing, without user intervention, the document on the printing device;

updating the stored user profile after causing the automatic printing; and

responsive to the updating step, subsidizing a product for a user.

According to a second aspect, the present invention provides a document delivery system having a document capable of being operatively coupled to a printing device, a method of printing the document on the printing device comprising the steps of:

storing a print schedule;

storing a user profile;

including advertising content, personalized based on the user profile, into the document;

automatically requesting, without user intervention, the document based on the print schedule;

transmitting the document to the printing device; and

causing automatic printing, without user intervention, the document on the printing device.

According to a third aspect, the present invention provides a business method, comprising the steps of:

monitoring the usage of a printing device; and

subsidizing the purchase of a product, based on the monitoring step.

According to a fourth aspect, the present invention provides an apparatus for printing a document on a printing device, comprising:

a document server operatively coupled to the printing device;

a user profile stored on the document server;

advertising content, personalized based on the user profile, adapted to be included into the document;

a print schedule, operatively coupled to the printing device, that monitors when the document should be printed by the printing device;

the document server automatically transmitting, without user intervention, the document to the printing device, responsive to an indication from the print schedule to cause the printing device to automatically print the document and include advertising content, without user intervention.

According to a fifth aspect, the present invention provides an apparatus for printing a document on a printing device having an associated user profile, comprising:

a print schedule, operatively coupled to the printing device, that monitors when the document should be printed by the printing device;

advertising content, personalized based on the user profile, adapted to be included into the document; and

a document server, to which the printing device is operatively coupled, that automatically transmits without user intervention, the document and included advertising content to the printing device and causes the printing device to automatically print the document, without user intervention, responsive to an indication from the print schedule.

A document is operatively coupled to a printing device, either directly or through a network such as the Internet. A print schedule is stored that keeps track of when a document should be printed on the printing device. When the print schedule indicates the document should be printed, the document is automatically transmitted to the printing device without user intervention. The printing device automatically prints the document, again without user intervention. The document can be stored on a electronic

device, such as a personal computer connected to the printing device, or can be stored on a document server accessible to the printing device through the Internet.

A user profile is stored that contains information about the recipient of the document such as name, email address, household income, and interests. This user profile is updated when a document is printed on the printing device. This user profile can be used to select specific information of interest to the user to be included in a personalized document. Since advertising can also be included in the document, the user profile can also be used to select advertising likely to be of interest to the user to be included in the personalized document.

A product can be subsidized for a user, based on the information contained in the user profile. For example, if a user profile indicates that a specific user has printed a specific number of "preferred" documents, such as those documents containing advertising or otherwise under the control of the document delivery system, a product such as a print consumable, such as an inkjet cartridge or a laser toner cartridge, can automatically be sent to the user. Likewise, printable media such as paper can also automatically be sent to user. Alternatively, coupons for free or discounted products such as those described above can be mailed, sent electronically, or otherwise distributed to the user.

Unless the context clearly requires otherwise, throughout the description and the claims, the words 'comprise', 'comprising', and the like are to be construed in an inclusive sense as opposed to an exclusive or exhaustive sense; that is to say, in the sense of "including, but not limited to".

Description of the Drawings

Fig. 1 shows a block diagram of a document delivery system of one embodiment of the invention.

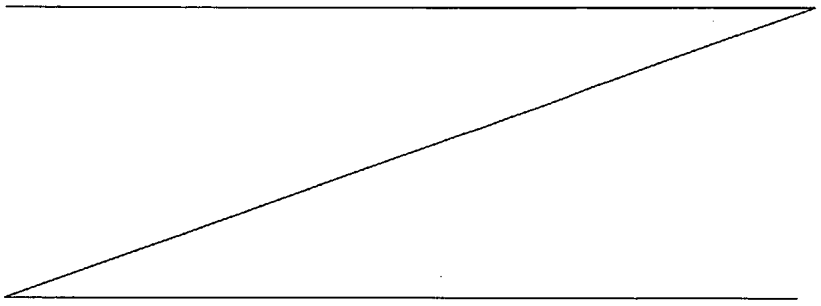


Fig. 2-4 show flowcharts detailing the operation of the transmission module and the printing module of the document delivery system of one embodiment of the invention.

Fig. 5 shows how user profile information is acquired from a user in one embodiment of the invention.

Fig. 6 shows how user profile information is acquired from a user in one embodiment of the invention.

Fig. 7 shows a print schedule for the delivery of documents in one embodiment of the invention.

Fig. 8 shows how the print schedule of Fig. 7 can be modified by the user.

Figs. 9A-9B shows a document printed by the printing device according to one embodiment of the invention.

Fig.10 shows a document printed by the printing device according to one embodiment of the invention.

Figs. 11A-11D shows a document printed by the printing device according to one embodiment of the invention.

Fig. 12 shows a document printed by the printing device according to one embodiment of the invention.

Detailed Description of the Embodiments

Fig. 1 shows a block diagram of a document delivery system of one embodiment of the invention. Document delivery system 10 contains document server 100. In the preferred embodiment, document server 100 is operatively coupled via network 200 to a variety of personal computers, printing devices, and other electronic devices, collectively referred to as devices 300. Document server 100 contains edit module 120, transmission module 150, and knowledge module 170. Edit module 120 receives inputs from one or more content providers 50, and/or one or more advertising providers 80. Distribution module 400 is operatively coupled to document server 100. In the preferred embodiment, document server 100 is a minicomputer/server, such as an HP 9000 server sold by the Hewlett-Packard Company, although those skilled in the art will appreciate that document server 100 could be any type of other computing or electronic device(s) that performs the functions described herein and still fall within the spirit and scope of the invention. Network 200 is preferably the Internet, although an Intranet, local area network, or other type of public or private network, either wired (e.g., telephone, cable TV, etc) or wireless (e.g., satellite, radio, cell phone, etc), could also or additionally be used.

Devices 300 are shown in Fig. 1 as being capable of being configured in a wide variety of ways. For example, personal computer 310 is shown connected to printing device 320, which prints document 10320 for user 20320. Personal computer 310 is operatively coupled to network 200. In contrast, printing device 330, which prints document 10330 for user 20330, is operatively coupled to network 200 without an intervening personal computer or other electronic device. Printing device 350, which prints document 10350 for user 20350, is shown connected to electronic device 340, which could be a set top box, television set, palmtop PDA or other type of electronic device that is operatively coupled to network 200. Finally, printing device 370, which prints document 10370 for user 20370, is connected to electronic device 360, which is operatively connected to network 200. The printing devices shown in Fig. 1 could be printers, such as the HP DeskJet 890 printer, HP LaserJet V printer, or other models of printers manufactured by HP or others; so-called "mopiers" or other multi-function printing devices that can print, fax, scan, and/or copy, or any other device capable of transferring information to a printable media such as plain paper, specialty paper, transparencies, or other media capable of tangibly receiving such information and which can be easily carried about by the user.

Fig. 2-4 show flowcharts detailing the operation of transmission module 150 and printing module 380 of one embodiment of the invention. In Figs. 2-4, the flow diagram shown in the left column is executed by transmission module 150 of document server 100, and the flow diagram in the right column is executed by printing module 380. As Fig. 1 shows, printing module 380 could be located in any of the devices 300, such as in personal computer 310, printing device 330, or electronic device 340, operatively coupled via network 200 to document server 100, or it could be located within document server 100 itself, such as in knowledge module 170. Preferably, transmission module 150 and printing module 380 represents software that executes on suitably programmed microprocessor(s) within a device 300 and/or document server 100, although those skilled in the art will appreciate that special purpose hardware or other mechanisms could be employed to execute the flowcharts shown in Figs. 2-4.

Referring now to Fig. 2, the flow diagram for transmission module 150 starts in block 1000, and the flow diagram for printing module 380 starts in block 2000. Since there is a great deal of interaction between these two flow diagrams, as represented by dashed lines connecting the two columns, the operation of the two flow diagrams will be described simultaneously.

In bloc k 2100, user profile data is sent to document server 100 to be stored in the user profile. This user profile data can take on many different forms, from simple to very detailed.

Fig. 5 shows a very simple acquisition of user profile data, such as that used in HP's Instant Delivery Program, the first version of which was generally available to the public less than one year from the filing date of this patent application. In this program, only three pieces of information are stored in the user profile: type of printer, email address, and whether HP can contact the user or not. Fig. 6 shows a more complicated user profile than that currently used in HP's Instant Delivery Program, which includes the user's name, email address, company name, city, state, country, zip or postal code, phone number, printer information, and areas of interest. Those skilled in the art will appreciate that more or less user profile data from those shown in Figs. 5 and 6 could be sent to transmission module 150 in block 2100 and still fall within the spirit and scope of the invention, and that at least some of this information could come from a source other than the user. For example, the user profile data could also include household income, age, and sex of the user, among other things. In any event, block 1100 receives the user profile data sent by block 2100. Block 1200 stores the user profile data, preferably in knowledge module 170. Alternately, the user profile data could be stored in device 300 or in some other local or remote location.

Block 2200 checks to see whether a document should be received from document server 100. This is done by checking print schedule 390 which is preferably stored on a device 300 or document server 100, but may be stored in some other local or remote location. Printing schedule 390 preferably contains information that can be used to determine when documents should be printed by the printing device, such as upon document creation, user requested time, lapse of specified time period, and/or occurrence of one or more external events (e.g., a stock price or index reaching a specified value, a final score of a sporting event, etc). Printing schedule 390 may be associated with an individual user, a device, or a group or users and/or devices. In addition, each entry of printing schedule 390 could result in the printing of one or more documents.

Fig. 7 shows one example of printing schedule 390, of the type that might be used in an enhanced version of HP's Instant Delivery Program. In this example, the title of delivery, delivery schedule, next delivery date and time, and last delivery status are shown. Preferably, the user can select what time a document should be printed, whether it should be printed on a specific day of the week or month, weekdays, or weekends, and whether the printing schedule should expire after a specific period of time or continue indefinitely.

Referring again to Fig. 2, printing module 380 monitors printing schedule 390 to see if a document should be requested from document server 100 or from another source. When block 2200 determines that a document should be requested from document server 100 or from

another source, block 2200 is answered affirmatively, and block 2300 automatically requests the document without user intervention from server 100 or from another source, as will be described in more detail later. Note that if printing module 380 is located on device 300, block 2200 operates in a "pull" mode – where the document is "pulled" from document server 100 or another source to device 300. However, if printing module 380 is located remotely from device 300, such as in document server 100, block 2200 operates in a "push" mode – where the document is "pushed" from document server 100 or another source to device 300. If block 2300 determines that the document is located on document server or at another source accessible via network 200, and if device 300 is currently in a disconnected state where it is not operatively coupled to the network, block 2300 will sign on to or otherwise enter a connected state with network 200, so that device 300 is operatively coupled to network 200. Meanwhile, block 1300 checks to see if a document has been requested from printing module 380 in block 2300. Once it determines that such a document has been requested, block 1400 generates the document for printing module 380. Block 1500 then sends the document to printing module 380. Block 2400 checks to see whether a document has been received from document server 100 via block 1500. Once such a document has been received, block 2500 automatically prints the document, without user intervention, on a printing device. The term "without user intervention" means that a user is not directly involved in the printing operation; the document is sent automatically to a device 300 to be printed out by a printing device. The user does not press any "print" buttons or otherwise be directly involved in the printing process; in fact, the user may not even be present in the same room, city, state, or country as device 300 during the printing operation. The printing operation automatically occurs in an unattended state – regardless of whether the user is present or not. In addition, if print schedule 390 is stored in a device-independent manner, such as on document server 100, a travelling user could "log in" to document server 100 and have his or her customized document sent to a device 300 that is convenient to the user's current location.

Referring now to Fig. 3, block 2600 checks to see whether the document printed successfully. If not, block 2800 performs error handling, such as attempting to print the document again, notifying the user that the printing device is out of paper or has some other error condition, or simply deciding not to print the document. When the document prints successfully, block 2900 informs document server 100 that the document printed successfully. Block 1600 waits for an indication from printing module 380 that the document did print successfully. When such an indication is received, block 1700 updates the user profile with this information.

The latest publicly released version of HP's Instant Delivery Program as of the filing date of this application (1.2.1) does not execute some of the blocks shown in Fig 3. Specifically, blocks 2900 and 1600-1900 are not executed by this version or any previously publicly released versions of Instant Delivery. Instead, in this embodiment, flow of control moves from block 2600 to block 4100 of Fig. 4, as will be discussed later, and from block 1500 back to block 1300 of Fig. 2.

An alternate embodiment has been contemplated where other information is transmitted back to document server 100 in block 2900 to update the user profile preferably stored in knowledge module 170. This other information could be ink usage (total usage or usage broken out by ink color), printable media usage (number of pages printed, type of media used, etc), or other types of information. In addition, another alternate embodiment has been contemplated where some or all of the information contained in the user profile stored in knowledge module 170 came from a source other than the user via printing module 380. For example, publicly or privately available information about the user, and/or the devices 300 he/she/they use, could be acquired from a wide variety of different sources and inserted into the user profile preferably stored in knowledge module 170.

Block 1800 examines the user profile preferably stored in knowledge module 170 to determine whether a product subsidy should be provided to the user. For example, if the information in the user profile indicates that this user has printed off his 1000th document, such as a "preferred" document that contains advertising from advertising providers 80 or is otherwise under the control of edit module 120, providing a product subsidy to the user may be warranted. For purposes of this invention, a "product" could be a print consumable or other product. A "print consumable" is an inkjet cartridge for an inkjet printer, ink for such an inkjet cartridge, a toner cartridge for a laser printer, toner for such a toner cartridge, or any other product or substance that is depleted when a document gets printed, including printer ribbons, etc. Note that the "ink" referred to above would typically be of a permanent variety, but erasable ink, such as that sold by the Eink Company, could also be used.

Note that the product subsidy referred to herein is preferably funded at least in part by advertising revenue received from advertising providers 80 (Fig. 1), but an embodiment has been contemplated where the product subsidy is funded at least in part from distribution revenue received from content providers 50 (Fig. 1). In either case, information (such as statistical information) about what was printed by whom is preferably provided to content providers 50 and/or advertising providers 80 – preferably as a document that is automatically sent to one or more printing devices according to the teachings of this invention.

Other forms of products that are contemplated to be subsidized by this invention include printable media, such as plain paper, specialty paper, transparencies, and the like, and may also included devices 300 such as printing devices, electronic devices, and personal computers. In fact, alternate embodiments have been contemplated where other products, such as a subscription price to a document, or even a product not directly related to the document delivery system shown herein, such as soap or dog food, are subsidized. If block 1800 determines that such a subsidy is warranted, block 1900 requests that distribution module 400 provides such a subsidy to the user. In one embodiment, distribution module 400 simply mails a product such as a print consumable or other product such as the type described above to a user at the address specified in the user profile. In another embodiment, distribution module 400 mails or electronically generates a coupon that the user can use to receive a free or discounted product of the type described above. Regardless of whether block 1800 is answered affirmatively or negatively, flow of control then returns back to block 1300 (Fig. 2) to see if another document has been requested from the printing module.

Referring again to Fig. 3, after block 2900 informs document server 100 that the document printed successfully, flow of control moves to block 4100 (Fig. 4), which checks with document server 100 to see what the current version of printing module 380 is. Block 3100 checks to see whether such a request has been received, and when it is, block 3200 sends information concerning the current version of the printing module to printing module 380. Block 4200 compare this information from document server 100 with its own version and determines whether an updated version of printing module 380 is available. For example, if printing module 380 is running version 4.0, and document server 100 indicates that version 4.1 is the current version of printing module 380, block 4200 would determine that an updated version of printing module 380 is available, and flow of control would move to block 4300. Block 4300 checks to seeing whether this updated version of printing module 380 should be requested to be downloaded. While a user would typically be asked whether such a download should be requested or not, and would typically perform this download at a convenient time, such a step could also be performed automatically without user intervention. If such a download is requested, block 4400 requests the download. Once such a download has been requested, block 3400 is answered affirmatively, and block 3500 downloads the updated printing module, which is then installed in block 4500. Regardless of how blocks 4200 and 4300 are answered, flow of control moves to block 4600, which checks to see if a disconnected state should be entered. If block 2300 (Fig. 2) determined that device 300 was in a disconnected state when the document was requested, as discussed above (i.e., not operatively

coupled to network 200), block 4600 is answered affirmatively, and block 4700 reenters the disconnected state. In any event, flow of control returns to block 2200 of Fig. 2.

Referring again to print schedule 390 shown in Fig. 7, it can be seen that many different types of documents can be requested to be printed. For example, the title of document 11000 specifies a network address, such as an Internet uniform resource locator (URL) that contains the network location of a document to be printed. Note that this URL may be partially or completely hidden from the user, as is the case with the URL for document 15000 (http://www.beloitdailynews.com). In this scenario, edit module 120 of document server 100 merely goes out to the Internet at the URL indicated (which would be shown in Fig. 1 as one of the content providers 50), and captures the indicated document, which is then transmitted to a printing device via transmission module 150 and printing module 380, as has been discussed. Alternatively, device 300 could go directly out to the URL itself without assistance from document server 100; in this case, block 2300 (Fig. 2) requests document 11000 from another source -- directly from the content provider 50 (at the indicated URL) via network 200. This alternate embodiment is used by the current version of HP's Instant Delivery Program.

In contrast, document 12000 is not a document that originates with a content provider 50 via the Internet, but instead is stored directly on device 300, such as a printing device, personal computer, or other electronic device. An example of such a document could be a daily calendar from a program such as Microsoft Outlook, which the user has requested be printed automatically to his printer, without any user intervention, at 7:00 a.m. every weekday morning. In such an embodiment, printing module 380 does not need to request the document from document server 100, since it can access the documents without going through network 200. In this embodiment, block 2300 of Fig. 2 requests the document from another source -- device 300. While block 2900 would still preferably indicate that the document was printed, and while block 1700 would still preferably update the user profile in knowledge module 170, printing such a document would preferably not generate any type of credit towards a product subsidy, since such a document would not be considered a "preferred" document; e.g., not a document under the control of edit module 120.

Referring again to Fig. 7, a print schedule of document 13000 is shown. Document 13000 is referred to as a "personalized document". A "personalized document" is a document that is assembled by edit module 120 of document server 100 from a variety of content providers 50 and advertising providers 80, based on information contained in the user profile stored in knowledge module 170. For example, document 13000 is a "personalized document". Our user has requested that document 13000 -- his personalized newspaper -- be

printed at 6 a.m. every day. Edit module 120 examines the user's interests as specified in the user profile stored in knowledge module 170 to assemble the document from selected content providers 50 in which the user has indicated an interest. Edit module 120 also inserts advertising from selected advertising providers 80--again based on the user profile stored in knowledge module 170..

Fig. 8 shows how the print schedule 390 of Fig. 7 can be edited by the user. The user can use the publisher's recommended schedule, use a default schedule the user has set, or use a custom schedule for delivery. If a custom schedule is selected, the user can select a daily, weekly, or monthly delivery, or select a delivery once every specified number of days, or specify every weekday. In addition, the time of day can also be specified: once at a designated time, multiple times during the day, or multiple times separated by a specified period of time. While not shown here, the user could also edit print schedule 390 to request that a document be sent upon creation, or upon the occurrence of an external event.

Figs. 9A-B show document 11000 printed by the printing device according to one embodiment of the invention. Note that this document came from one content provider 50 via network 200 (either through document server 100 or directly), and contains no advertising. While document 11000 is preferably formatted by content provider 50 such that the information contained in the document is optimized to be printed, such formatting is not necessary.

Fig.10 shows document 12000 printed by the printing device according to one embodiment of the invention. Note that this document is a user's daily calendar which came directly from device 300 and not from document server 100 via network 200.

Figs. 11A-D show document 13000 printed by the printing device according to one embodiment of the invention. Note that this document is a user's personalized newspaper which contains information in which the user has indicated a specific interest in, as stored in the user profile in knowledge module 170. Note also that this document contains advertising that edit module 120 determined the user would also be interested in, again based on the information contained in the user profile stored in knowledge module 170. As has already been discussed, when the user prints a sufficient number of such "preferred" documents, the user may receive a subsidy of a print consumable or other product(s).

Fig. 12 shows document 14000 printed by the printing device according to one embodiment of the invention. Note that document 14000 is the HP Instant Delivery Times – a document located on document server 100. While this document does not contain advertising per se, it is still considered to be a "preferred document", since it is under the control of edit

module 120. Document 14000 informs users of Instant Delivery of new releases or new information about the Instant Delivery Program.

What is claimed is:

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:-

1. In a document delivery system having a document capable of being operatively coupled to a printing device, a method of printing the document on the printing device comprising the steps of:

storing a print schedule;

storing a user profile;

automatically requesting, without user intervention, the document based on the print schedule;

transmitting the document to the printing device;

causing automatic printing, without user intervention, the document on the printing device;

updating the stored user profile after causing the automatic printing; and

responsive to the updating step, subsidizing a product for a user.

2. The method of claim 1, wherein the subsidizing a product step further comprises at least one of the steps of sending a print consumable to the user, sending a coupon for a free print consumable to the user, sending a coupon for a reduced price print consumable to the user, sending printable media to the user, sending a coupon for printable media to the user, sending a second printing device to the user, and sending a coupon for a second printing device to the user.

3. The method of claim 1 or 2, further comprising the steps of:

including advertising content into the document.

4. The method of claim 3, wherein the step of including advertising content further comprises the step of:

personalizing the advertising content based on the user profile.

5. The method of any one of the preceding claims, wherein the step of transmitting the document further comprises the step of personalizing the content of the document based on the user profile.

6. The method of any one of the preceding claims, further comprising the step of:

responsive to the causing printing step, updating the user profile.

7. The method of claims 6, further comprising the step of:

responsive to the updating step, subsidizing a product for a user.

8. The method of any one of the preceding claims, wherein the document is capable of being operatively coupled to the printing device via a network, the automatically requesting step further comprises the steps of:

entering a disconnected state where the printing device is not operatively coupled to the network;

monitoring the print schedule in the disconnected state; and

responsive to the monitoring step, entering a connected state where the printing device is operatively coupled to the network.

9. The method of claim 8, further comprising the step of:

after execution of the automatic printing, re-entering the disconnected state where the printing device is not operatively coupled to the network.

10. The method of any one of the preceding claims, wherein the document is capable of being operatively coupled to the printing device via a network, further comprising the steps of:

checking whether the printing device printed the document using a latest version of a printing module;

determining that the latest version of the printing module was not used, responsive to the checking step; and

downloading the latest version of the printing module via the network, responsive to the determining step.

11. The method of claim 10, further comprising the steps of:

informing a user that the latest version of the printing module is available;

asking the user whether they would like to have the latest version of the printing module downloaded; and

performing the downloading step only if the user indicated in the asking step that they would like to have the latest version of the printing module downloaded.

12. The method of any one of the preceding claims, further comprising the step of:

retrieving the document from at least one of an electronic device connected to the printing device, a personal computer connected to the printing device, a content provider coupled to the printing device via a network, a document server coupled to the printing device via a network, and the document server assembling the document from a plurality of content providers.

13. The method of claim 12, further comprising the step of:

the document server inserting advertising into the document from an advertising provider.

14. The method of any one of the preceding claims, further comprising the steps of:

the document server inserting personalized advertising into the document from an advertising provider based on the user profile; and

retrieving the document from the document server coupled to the printing device via a network.

15. In a document delivery system having a document capable of being operatively coupled to a printing device, a method of printing the document on the printing device comprising the steps of:

storing a print schedule;

storing a user profile;

including advertising content, personalized based on the user profile, into the document;

automatically requesting, without user intervention, the document based on the print schedule;

transmitting the document to the printing device; and

causing automatic printing, without user intervention, the document on the printing device.

16. The method of claim 15, further comprising the step of:

responsive to printing the document on the printing device, updating the user profile.

17. The method of claim 16, further comprising the step of:

responsive to the updating step, subsidizing a product for a user.

18. The method of claim 17, wherein the subsidizing a product step further comprises at least one of the steps of sending a print consumable to the user, sending a coupon for a free print consumable to the user, sending a coupon for a reduced price print consumable to the user, sending printable media to the user, sending a coupon for printable media to the user, sending a second printing device to the user, and sending a coupon for a second printing device to the user.

19. The method of any one of claims 15 to 18, wherein the step of transmitting the document further comprises the step of personalizing the content of the document based on the user profile.

20. The method of claim 15, further comprising the step of:

responsive to the causing printing step, updating the user profile.

21. The method of claims 20, further comprising the step of:

responsive to the updating step, subsidizing a product for a user.

22. The method of claim 21, wherein the subsidizing a product step further comprises at least one of the steps of sending a print consumable to the user, sending a coupon for a free print consumable to the user, sending a coupon for a reduced price print consumable to the user, sending printable media to the user, sending a coupon for printable media to the user, and sending a second printing device to the user.

23. The method of any one of claims 15 to 22, wherein the document is capable of being operatively coupled to the printing device via a network, the automatically requesting step further comprises the steps of:

entering a disconnected state where the printing device is not operatively coupled to the network;

monitoring the print schedule in the disconnected state; and

responsive to the monitoring step, entering a connected state where the printing device is operatively coupled to the network.

24. The method of claim 23, further comprising the step of:

after execution of the automatic printing, re-entering the disconnected state where the printing device is not operatively coupled to the network.

25. The method of any one of claims 15 to 24, wherein the document is capable of being operatively coupled to the printing device via a network, further comprising the steps of:

checking whether the printing device printed the document using a latest version of a printing module;

determining that the latest version of the printing module was not used, responsive to the checking step; and

downloading the latest version of the printing module via the network, responsive to the determining step.

26. The method of claim 25, further comprising the steps of:

informing a user that the latest version of the printing module is available;

asking the user whether they would like to have the latest version of the printing module downloaded; and

performing the downloading step only if the user indicated in the asking step that they would like to have the latest version of the printing module downloaded.

27. The method of any one of claims 15 to 26, further comprising the step of retrieving the document from at least one of the group comprising a personal computer connected to the printing device, a content provider coupled to the printing device via a network, a document server coupled to the printing device via a network, and the document server assembling the document from a plurality of content providers.

28. The method of claim 27, further comprising the step of:

the document server inserting advertising into the document from an advertising provider.

29. A business method, comprising the steps of:

monitoring the usage of a printing device; and

subsidizing the purchase of a product, based on the monitoring step.

30. The business method of claim 29, wherein the monitoring step further comprises the step of:

updating a user profile to indicate that a document has been printed for a user.

31. The business method of claim 30, wherein the updating step indicates that advertising in the document has been printed.

32. The business method of any one of claims 29 to 31, wherein the monitoring step further comprises the step of:

updating a user profile to indicate the amount of ink that was used when a document was printed.

33. The business method of claim 32, wherein the updating step further comprises the steps of:

updating the user profile to indicate the amount of each of a plurality of different colored ink that was used when a document was printed.

34. The business method of any one of claims 29 to 33, wherein the product in the subsidizing step is a print consumable.

35. The business method of any one of claims 29 to 33, wherein the product in the subsiding step is printable media.

36. The business method of any one of claims 29 to 33, wherein the product in the subsidizing step is a second printing device.

37. The business method of any one of claims 29 to 33, wherein the product in the subsidizing step is a subscription.

38. The business method of any one of claims 29 to 37, wherein said subsidizing step is funded by advertising revenue.

39. The business method of any one of claims 29 to 38, wherein said subsidizing step is funded by distribution revenue.

40. The business method of claim 30 or any one of claims 31 to 39 when appended to claim 30, further comprising the step of providing information about the document that was printed for the user to an advertising provider.

41. The business method of claim 30 or any one of claims 31 to 39 when appended to claim 30, further comprising the step of providing information about the document that was printed for the user to a content provider.

42. The business method of claim 40, further comprising the step of providing information about the document that was printed for the user to a content provider.

43. An apparatus for printing a document on a printing device, comprising:

a document server operatively coupled to the printing device;

a user profile stored on the document server;

advertising content, personalized based on the user profile, adpated to be included into the document;

a print schedule, operatively coupled to the printing device, that monitors when the document should be printed by the printing device;

the document server automatically transmitting, without user intervention, the document to the printing device, responsive to an indication from the print schedule to cause the printing device to automatically print the document and include advertising content, without user intervention.

44. The apparatus of claim 43, further comprising:

a network operatively coupled between the document server and the printing device.

45. The apparatus of claim 43 or 44, wherein the user profile further comprises:

an indication that the document was printed by the printing device.

46. The apparatus of any one of claims 43 to 45, wherein the user profile further comprises:

an indication that the document contained an advertisement.

47. An apparatus for printing a document on a printing device having an associated user profile, comprising:

a print schedule, operatively coupled to the printing device, that monitors when the document should be printed by the printing device;

advertising content, personalized based on the user profile, adapted to be included into the document; and

a document server, to which the printing device is operatively coupled, that automatically transmits without user intervention, the document and included advertising content to the printing device and causes the printing device to automatically print the document, without user intervention, responsive to an indication from the print schedule.

48. A method of printing a document substantially as herein described with reference to any one of the embodiments of the invention illustrated in the accompanying drawings.

49. A business method substantially as herein decribed with reference to any one of the embodiments of the invention illustrated in the accompanying drawings.

50. An apparatus for printing a document substantially as herein described with reference to any one of the embodiments of the invention illustrated in the accompanying drawings.

DATED this 24th day of December, 2002
HEWLETT-PACKARD COMPANY

Attorney: PETER R. HEATHCOTE
Fellow Institute of Patent and Trade Mark Attorneys of Australia
of BALDWIN SHELSTON WATERS

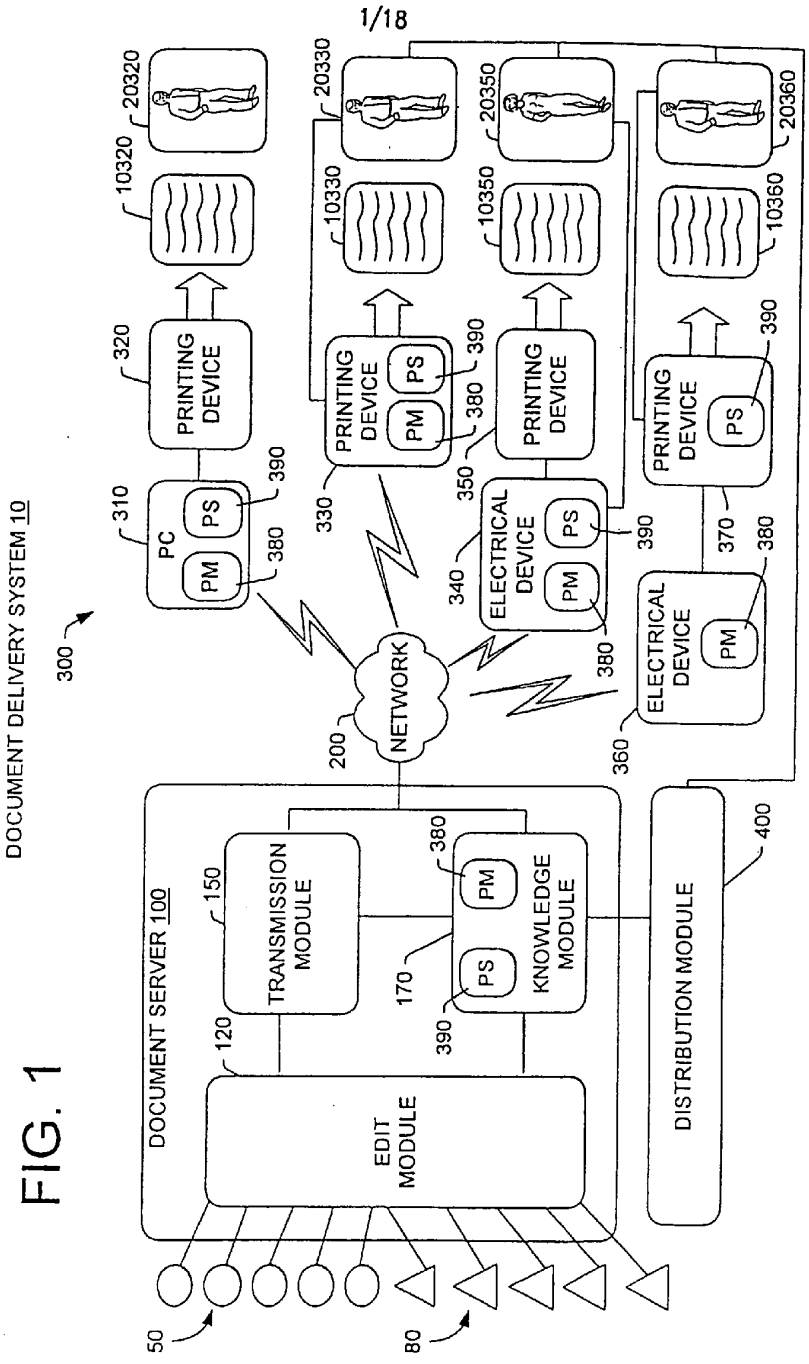

DOCUMENT DELIVERY SYSTEM 10
300
DOCUMENT SERVER 100
TRANSMISSION MODULE
150
KNOWLEDGE MODULE
380
PM
PS
170
390
EDIT MODULE
120
DISTRIBUTION MODULE
400
NETWORK
200
50
80
PC
310
PM
PS
380
390
PRINTING DEVICE
320
10320
20320
PRINTING DEVICE
330
10330
20330
ELECTRICAL DEVICE
340
350
10350
20350
PRINTING DEVICE
ELECTRICAL DEVICE
360
370
10360
20360

FIG. 1

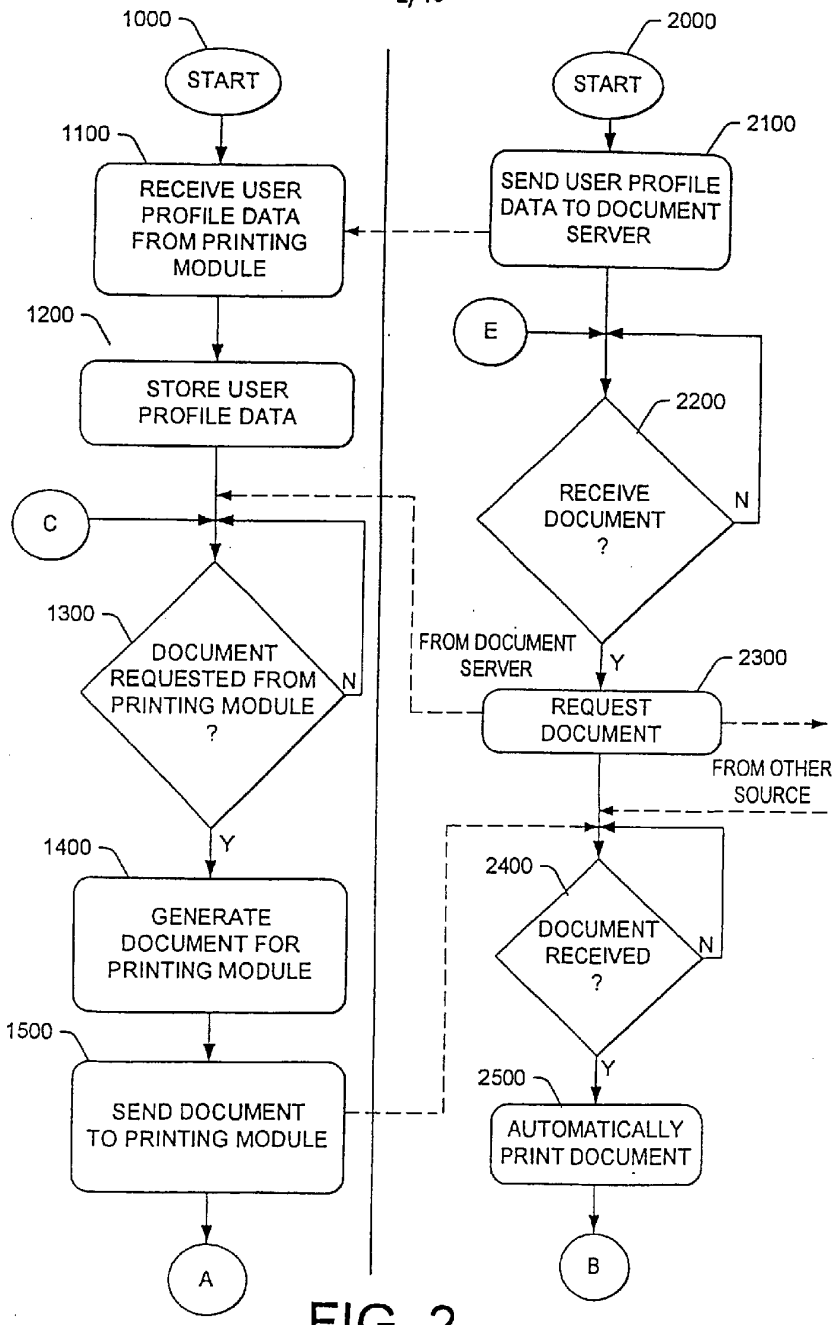

1000
START
1100
RECEIVE USER PROFILE DATA FROM PRINTING MODULE
1200
STORE USER PROFILE DATA
C
1300
DOCUMENT REQUESTED FROM PRINTING MODULE ?
N
Y
1400
GENERATE DOCUMENT FOR PRINTING MODULE
1500
SEND DOCUMENT TO PRINTING MODULE
A
2000
START
2100
SEND USER PROFILE DATA TO DOCUMENT SERVER
E
2200
RECEIVE DOCUMENT ?
N
Y
FROM DOCUMENT SERVER
2300
REQUEST DOCUMENT
FROM OTHER SOURCE
2400
DOCUMENT RECEIVED ?
N
Y
2500
AUTOMATICALLY PRINT DOCUMENT
B

FIG. 2

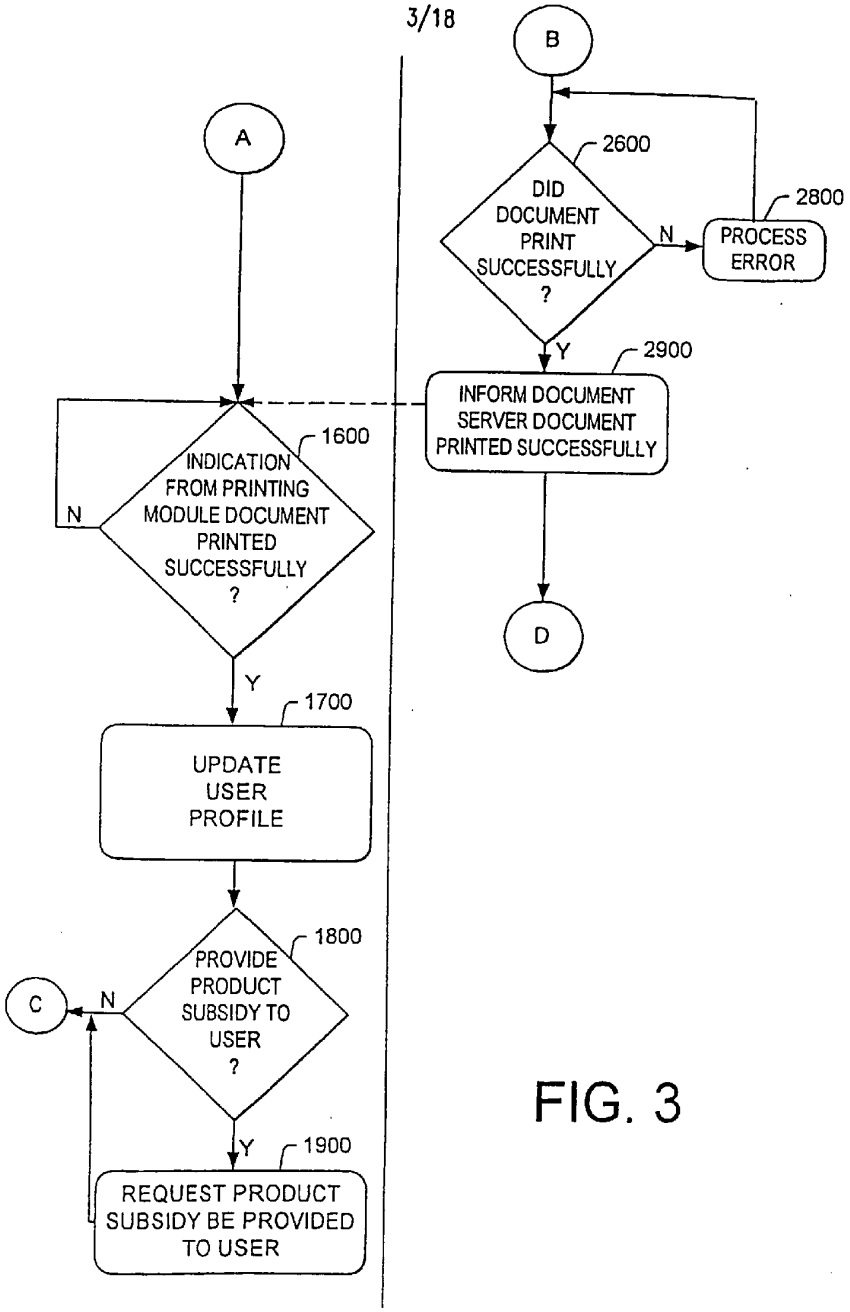

A
B
2600
DID DOCUMENT PRINT SUCCESSFULLY ?
N
2800
PROCESS ERROR
Y
2900
INFORM DOCUMENT SERVER DOCUMENT PRINTED SUCCESSFULLY
D
1600
INDICATION FROM PRINTING MODULE DOCUMENT PRINTED SUCCESSFULLY ?
N
Y
1700
UPDATE USER PROFILE
1800
PROVIDE PRODUCT SUBSIDY TO USER ?
C
N
Y
1900
REQUEST PRODUCT SUBSIDY BE PROVIDED TO USER

FIG. 3

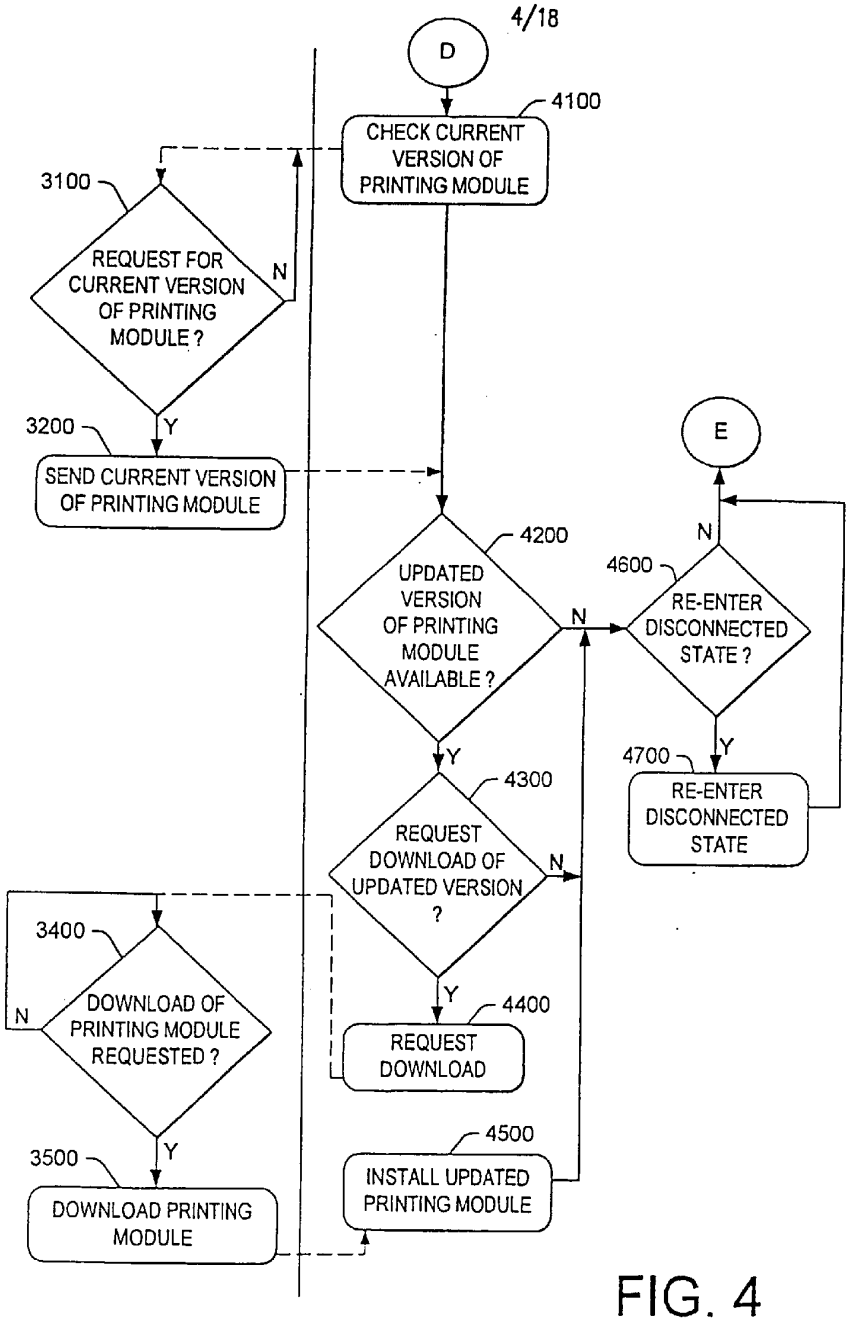

D
4100
CHECK CURRENT VERSION OF PRINTING MODULE
3100
REQUEST FOR CURRENT VERSION OF PRINTING MODULE ?
N
Y
3200
SEND CURRENT VERSION OF PRINTING MODULE
E
4200
UPDATED VERSION OF PRINTING MODULE AVAILABLE ?
N
4600
RE-ENTER DISCONNECTED STATE ?
N
Y
4700
RE-ENTER DISCONNECTED STATE
Y
4300
REQUEST DOWNLOAD OF UPDATED VERSION ?
N
Y
4400
REQUEST DOWNLOAD
3400
DOWNLOAD OF PRINTING MODULE REQUESTED ?
N
Y
3500
DOWNLOAD PRINTING MODULE
4500
INSTALL UPDATED PRINTING MODULE

FIG. 4

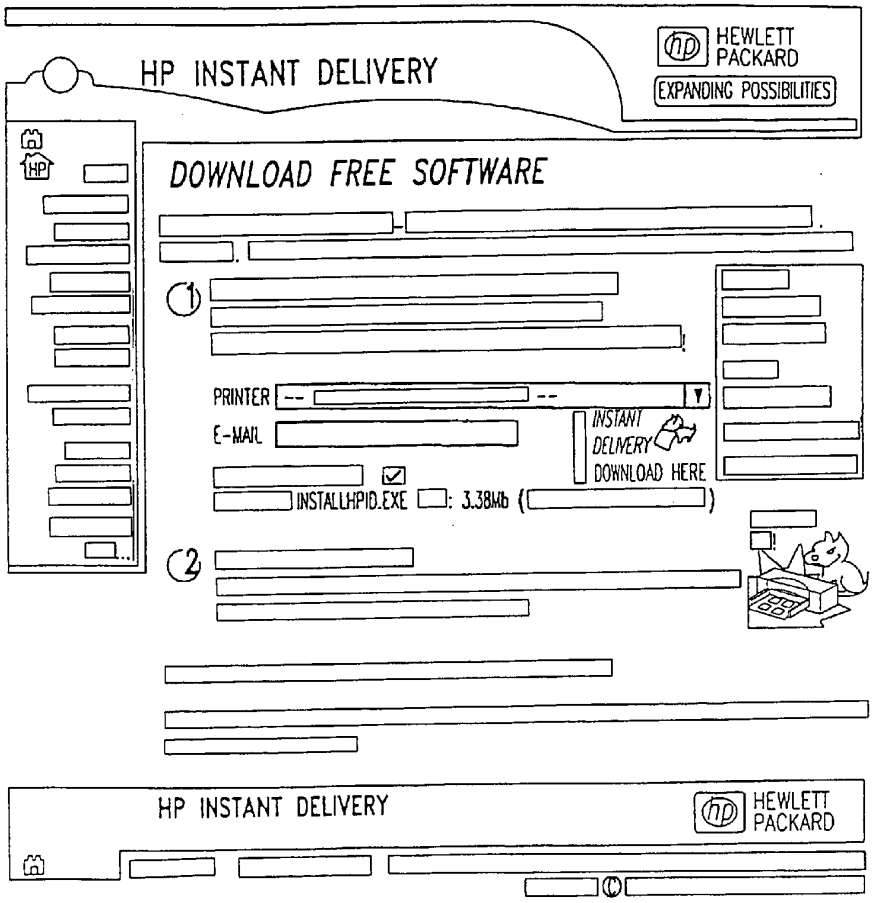

HP INSTANT DELIVERY
HEWLETT PACKARD
EXPANDING POSSIBILITIES
DOWNLOAD FREE SOFTWARE
1
PRINTER
E-MAIL
INSTANT DELIVERY DOWNLOAD HERE
INSTALLHPID.EXE : 3.38Mb
2
HP INSTANT DELIVERY
HEWLETT PACKARD

FIG.5

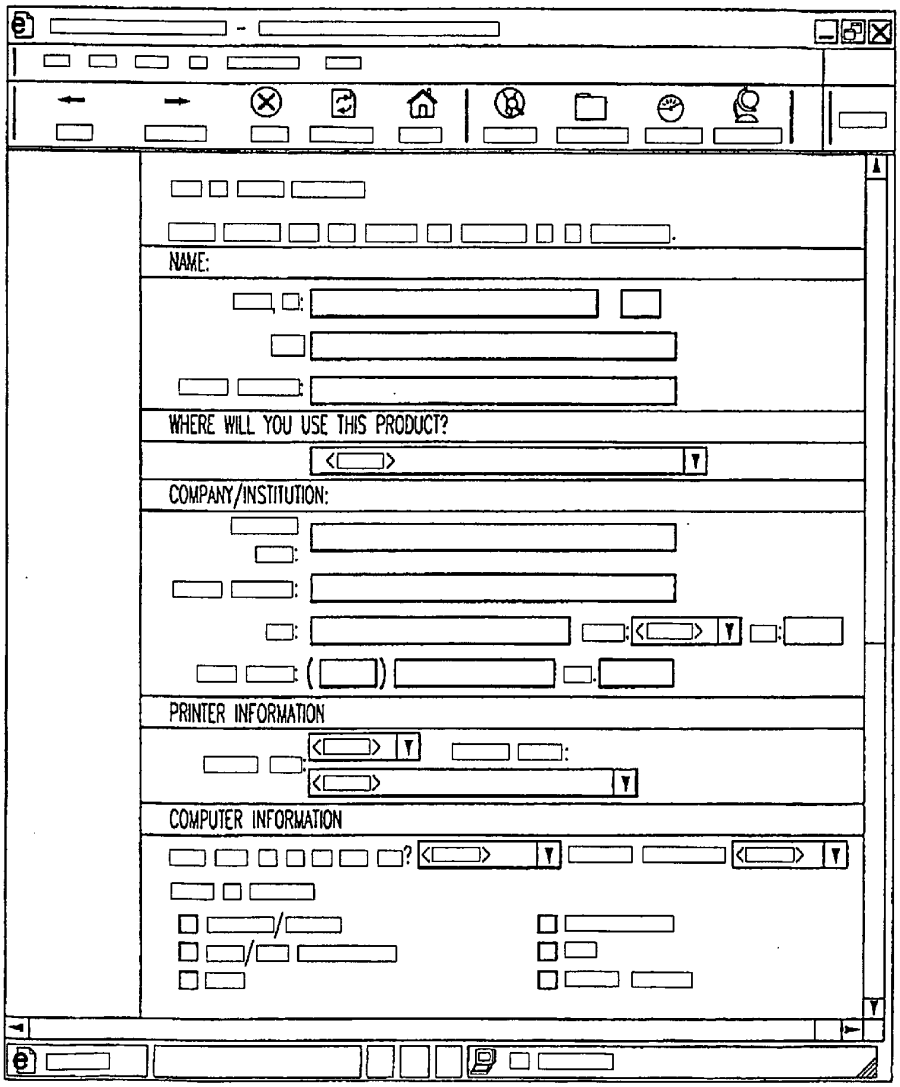

NAME:
WHERE WILL YOU USE THIS PRODUCT?
COMPANY/INSTITUTION:
PRINTER INFORMATION
COMPUTER INFORMATION

FIG. 6

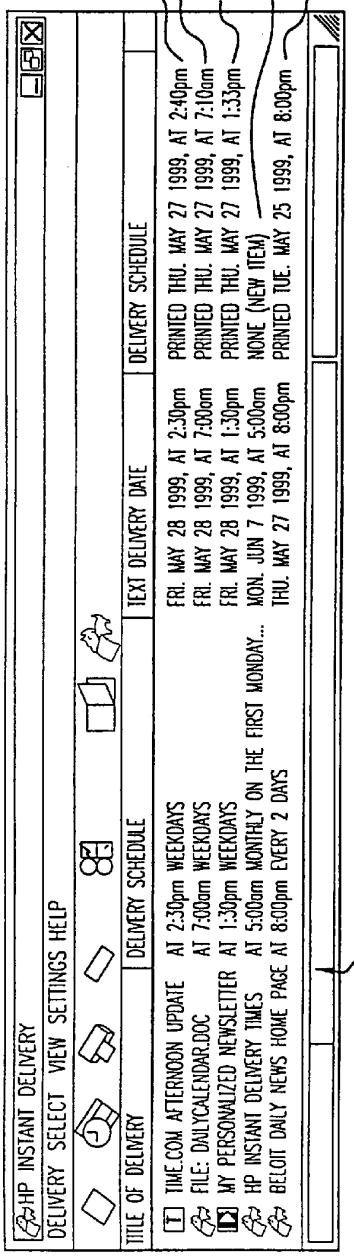

HP INSTANT DELIVERY
DELIVERY SELECT VIEW SETTINGS HELP
TITLE OF DELIVERY
DELIVERY SCHEDULE
TEXT DELIVERY DATE
DELIVERY SCHEDULE
TIME.COM AFTERNOON UPDATE AT 2:30pm WEEKDAYS FRI. MAY 28 1999, AT 2:30pm PRINTED THU. MAY 27 1999, AT 2:40pm
FILE: DAILYCALENDAR.DOC AT 7:00am WEEKDAYS FRI. MAY 28 1999, AT 7:00am PRINTED THU. MAY 27 1999, AT 7:10am
MY PERSONALIZED NEWSLETTER AT 1:30pm WEEKDAYS FRI. MAY 28 1999, AT 1:30pm PRINTED THU. MAY 27 1999, AT 1:33pm
HP INSTANT DELIVERY TIMES AT 5:00am MONTHLY ON THE FIRST MONDAY... MON. JUN 7 1999, AT 5:00am NONE (NEW ITEM)
BELOIT DAILY NEWS HOME PAGE AT 8:00pm EVERY 2 DAYS THU. MAY 27 1999, AT 8:00pm PRINTED TUE. MAY 25 1999, AT 8:00pm
11000
12000
13000
14000
15000
390

FIG.7

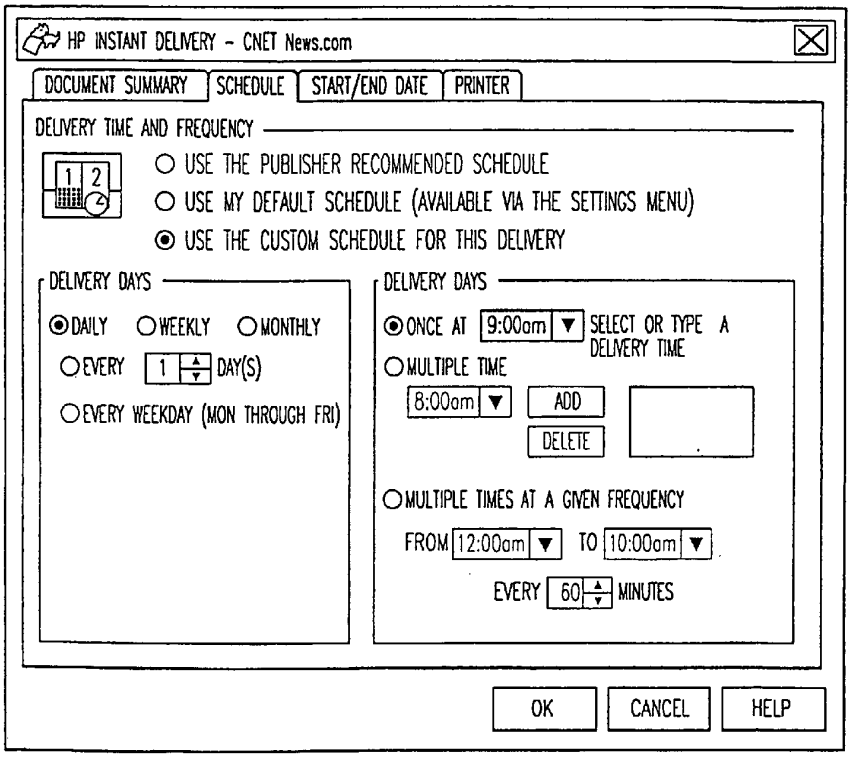

HP INSTANT DELIVERY - CNET News.com
DOCUMENT SUMMARY
SCHEDULE
START/END DATE
PRINTER
DELIVERY TIME AND FREQUENCY
USE THE PUBLISHER RECOMMENDED SCHEDULE
USE MY DEFAULT SCHEDULE (AVAILABLE VIA THE SETTINGS MENU)
USE THE CUSTOM SCHEDULE FOR THIS DELIVERY
DELIVERY DAYS
DAILY
WEEKLY
MONTHLY
EVERY 1 DAY(S)
EVERY WEEKDAY (MON THROUGH FRI)
DELIVERY DAYS
ONCE AT 9:00am
SELECT OR TYPE A DELIVERY TIME
MULTIPLE TIME
8:00am
ADD
DELETE
MULTIPLE TIMES AT A GIVEN FREQUENCY
FROM 12:00am
TO 10:00am
EVERY 60 MINUTES
OK
CANCEL
HELP

FIG.8

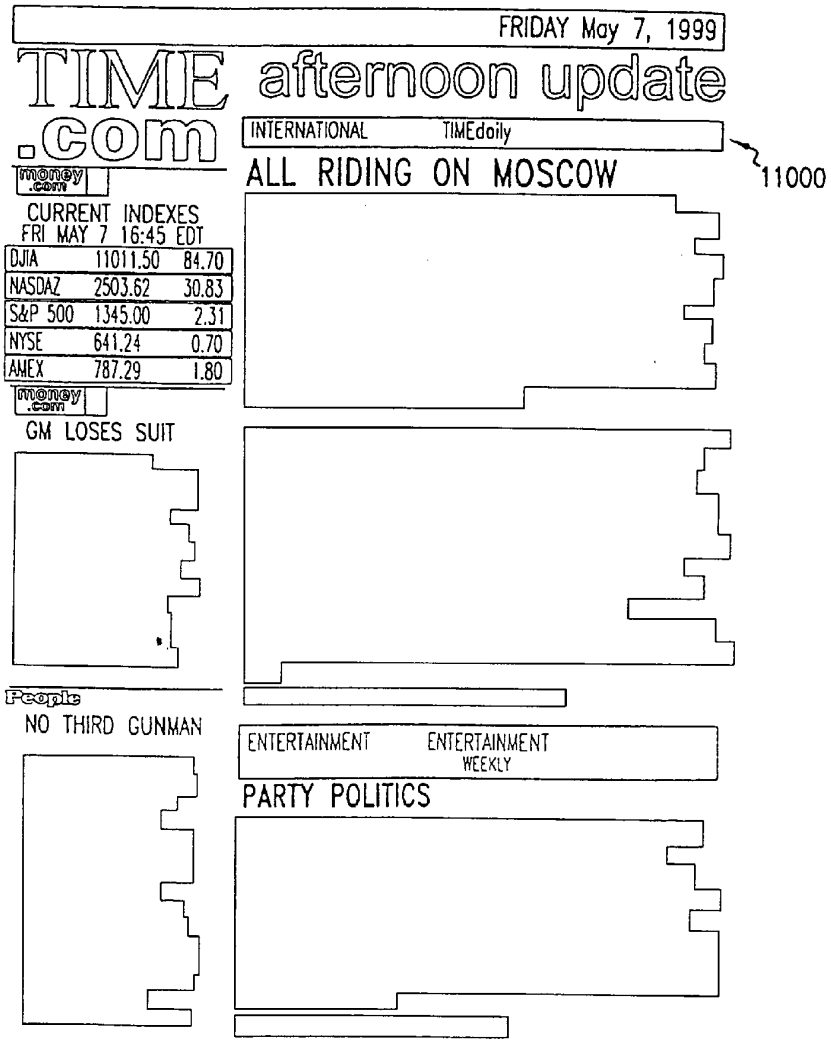

FRIDAY May 7, 1999
TIME .com
afternoon update
INTERNATIONAL
TIMEdaily
ALL RIDING ON MOSCOW
11000
money .com
CURRENT INDEXES
FRI MAY 7 16:45 EDT
DJIA 11011.50 84.70
NASDAZ 2503.62 30.83
S&P 500 1345.00 2.31
NYSE 641.24 0.70
AMEX 787.29 1.80
money .com
GM LOSES SUIT
People
NO THIRD GUNMAN
ENTERTAINMENT
ENTERTAINMENT WEEKLY
PARTY POLITICS

FIG.9A

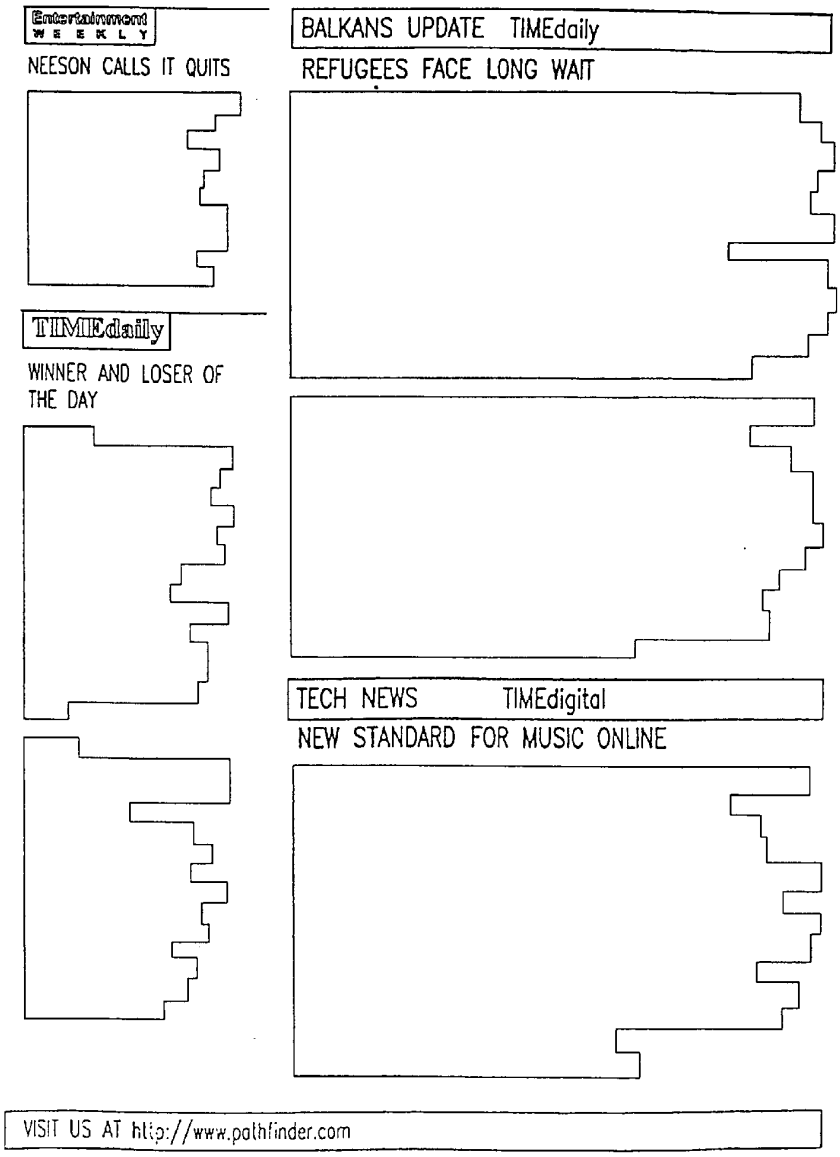

Entertainment WEEKLY
NEESON CALLS IT QUITS
TIMEdaily
WINNER AND LOSER OF THE DAY
BALKANS UPDATE TIMEdaily
REFUGEES FACE LONG WAIT
TECH NEWS TIMEdigital
NEW STANDARD FOR MUSIC ONLINE
VISIT US AT http://www.pathfinder.com

FIG.9B

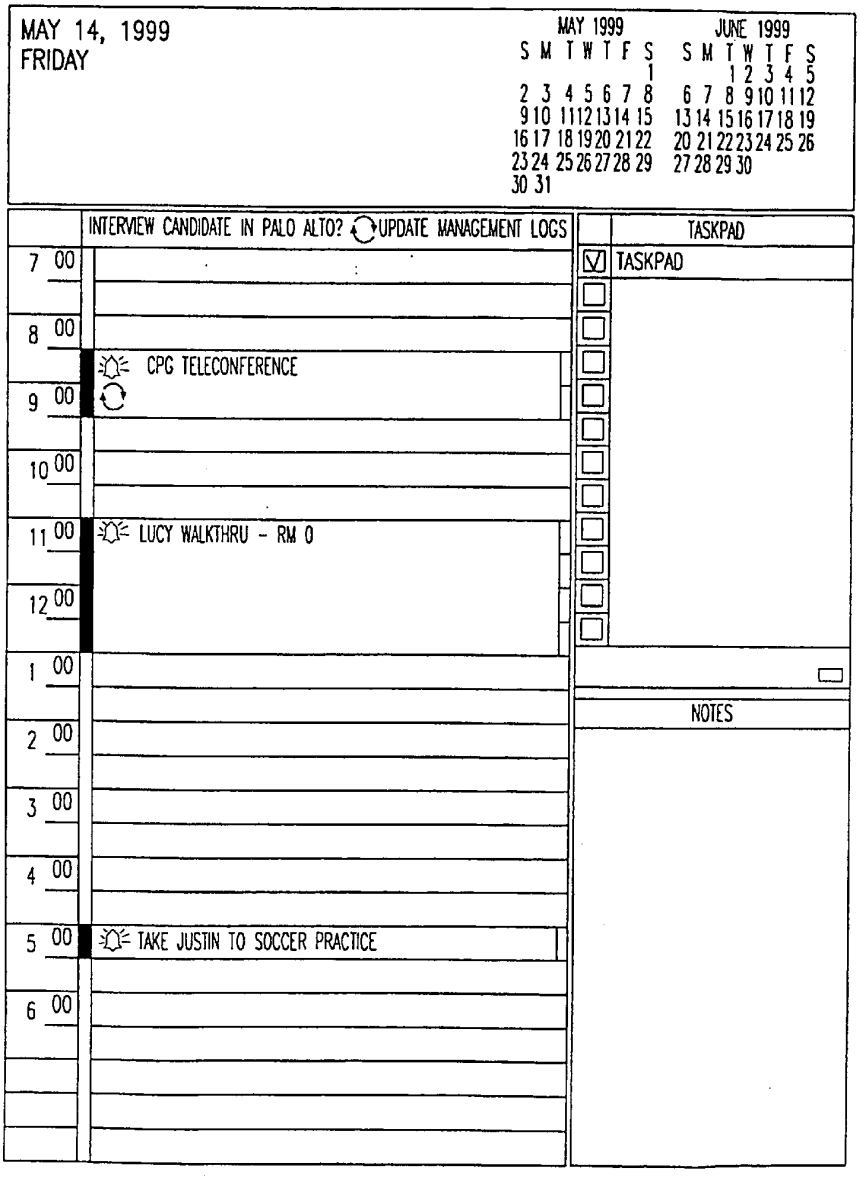

MAY 14, 1999
FRIDAY
MAY 1999
S M T W T F S
1
2 3 4 5 6 7 8
9 10 11 12 13 14 15
16 17 18 19 20 21 22
23 24 25 26 27 28 29
30 31
JUNE 1999
S M T W T F S
1 2 3 4 5
6 7 8 9 10 11 12
13 14 15 16 17 18 19
20 21 22 23 24 25 26
27 28 29 30
INTERVIEW CANDIDATE IN PALO ALTO?
UPDATE MANAGEMENT LOGS
7 00
8 00
CPG TELECONFERENCE
9 00
10 00
11 00
LUCY WALKTHRU - RM 0
12 00
1 00
2 00
3 00
4 00
5 00
TAKE JUSTIN TO SOCCER PRACTICE
6 00
TASKPAD
TASKPAD
NOTES

FIG.10

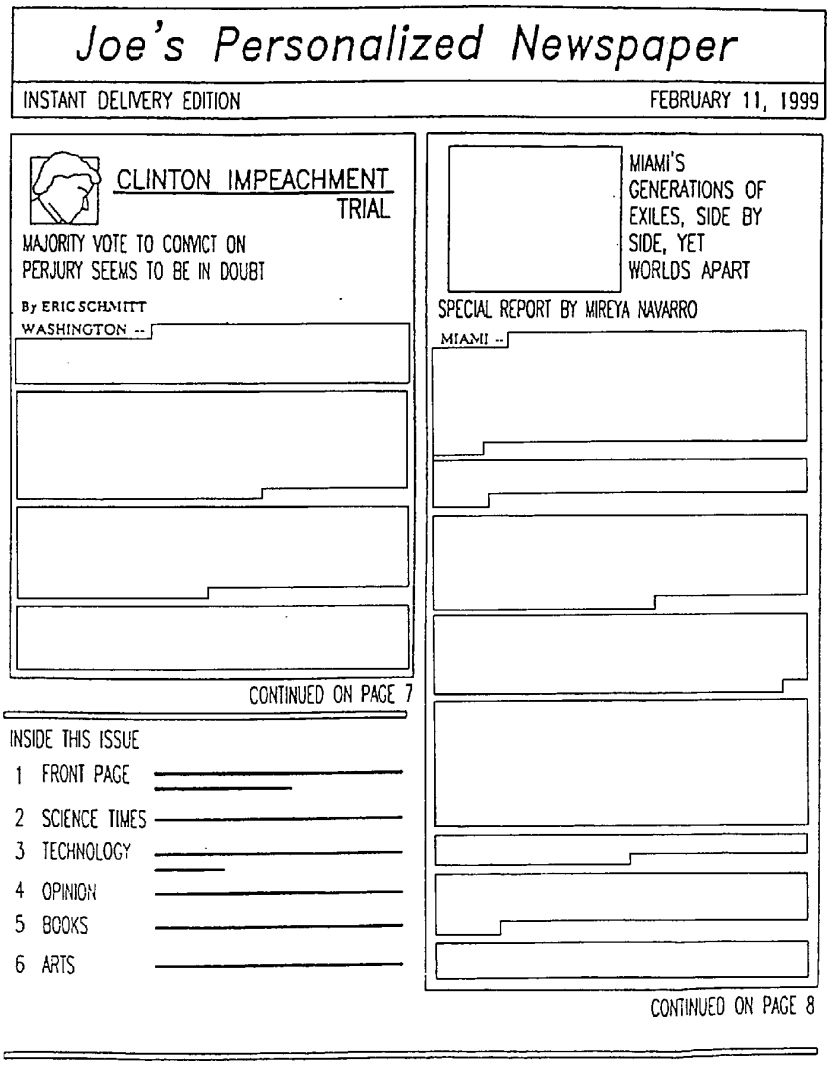

Joe's Personalized Newspaper
INSTANT DELIVERY EDITION
FEBRUARY 11, 1999
CLINTON IMPEACHMENT TRIAL
MAJORITY VOTE TO CONVICT ON PERJURY SEEMS TO BE IN DOUBT
By ERIC SCHMITT
WASHINGTON --
CONTINUED ON PAGE 7
INSIDE THIS ISSUE
1 FRONT PAGE
2 SCIENCE TIMES
3 TECHNOLOGY
4 OPINION
5 BOOKS
6 ARTS
MIAMI'S GENERATIONS OF EXILES, SIDE BY SIDE, YET WORLDS APART
SPECIAL REPORT BY MIREYA NAVARRO
MIAMI --
CONTINUED ON PAGE 8

FIG.11A

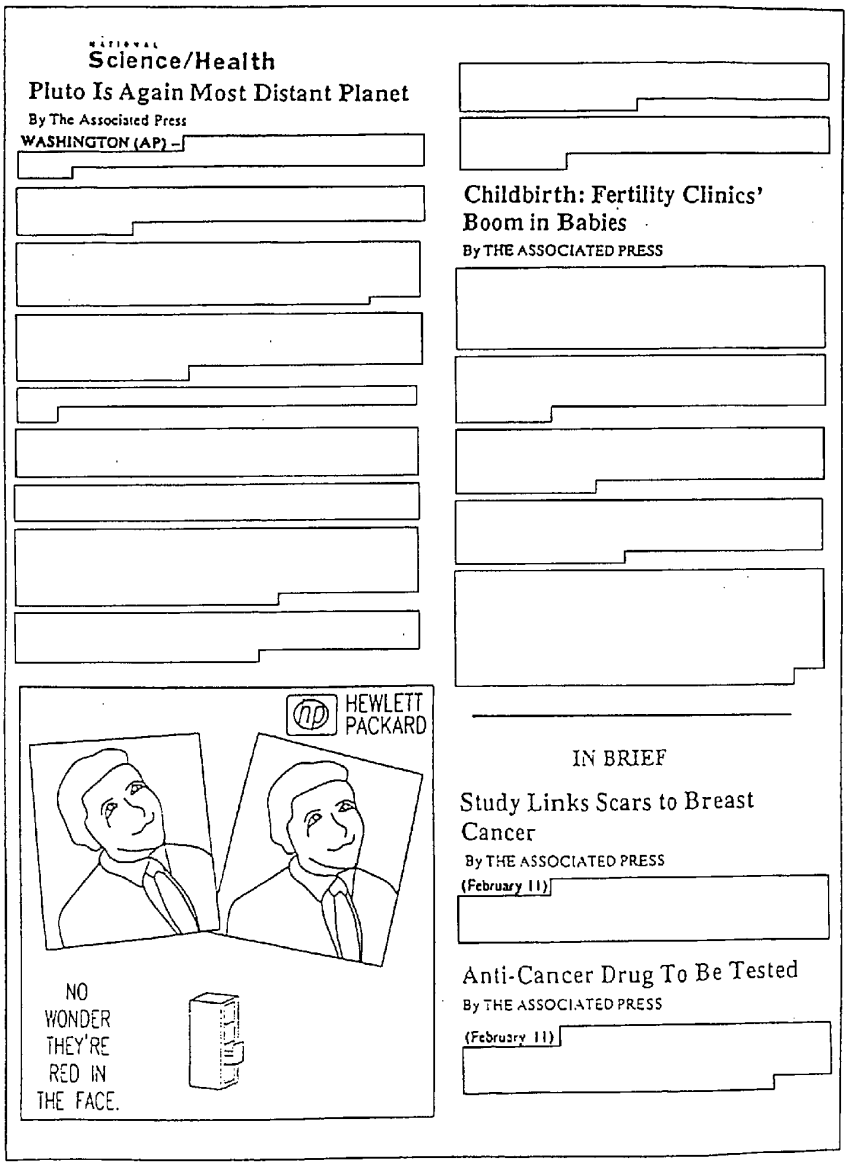

NATIONAL
Science/Health
Pluto Is Again Most Distant Planet
By The Associated Press
WASHINGTON (AP) –
Childbirth: Fertility Clinics' Boom in Babies
By THE ASSOCIATED PRESS
HEWLETT PACKARD
NO WONDER THEY'RE RED IN THE FACE.
IN BRIEF
Study Links Scars to Breast Cancer
By THE ASSOCIATED PRESS
(February 11)
Anti-Cancer Drug To Be Tested
By THE ASSOCIATED PRESS
(February 11)

FIG.11B

TECHNOLOGY

MORE STATES CONSIDER LAWS RESTRICTING JUNK E-MAIL

By JERI CLAUSING

IN BRIEF

COURT UPHOLDS INTERNET OFFICE BAN

By THE ASSOCIATED PRESS

NATIONAL SECURITY AND THE NET

By JERI CLAUSING

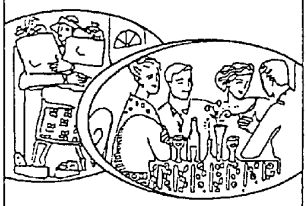
Shareholders Sell E*Trade

By DAVID CAY JOHNSTON

SUN IN DEAL WITH AOL

By BLOOMBERG NEWS

birch design studios



877 276 5253

royalty free stock illustration collections

birchdesign.com

CONTINUED ON PAGE 9

FIG.11C

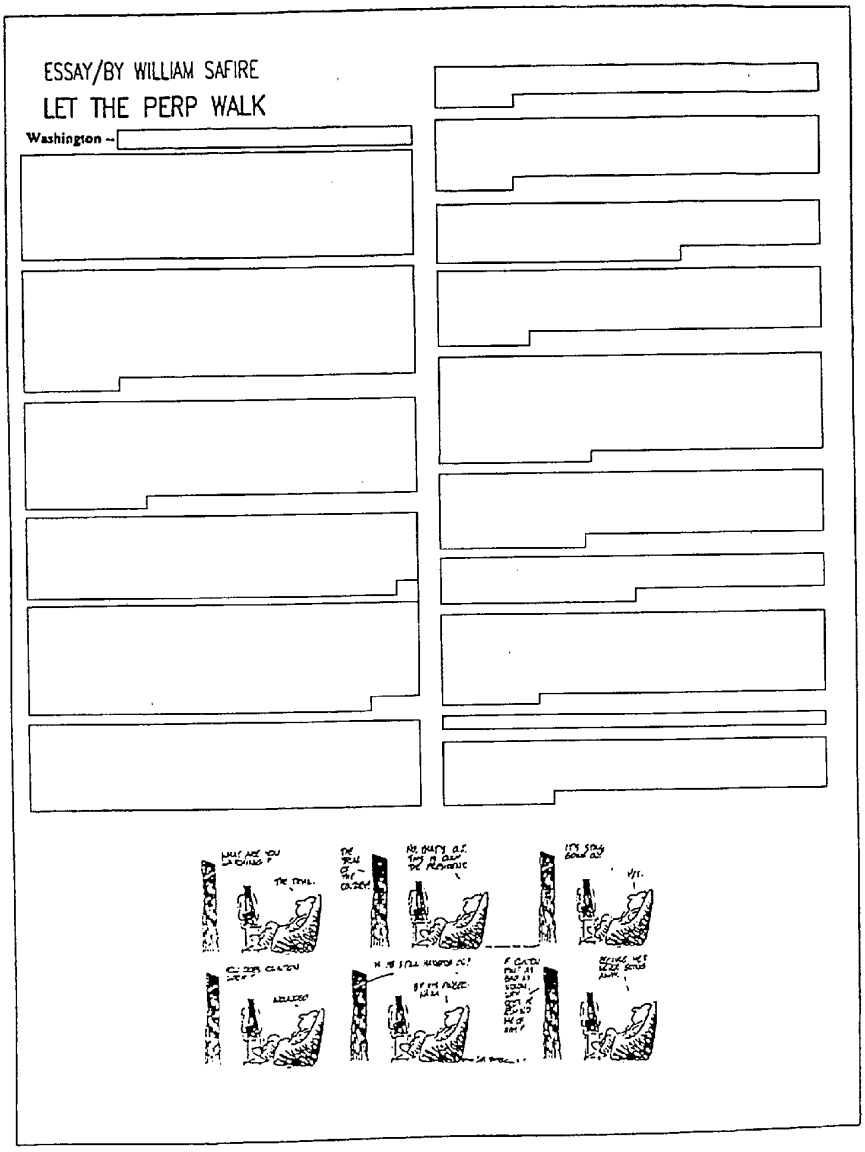
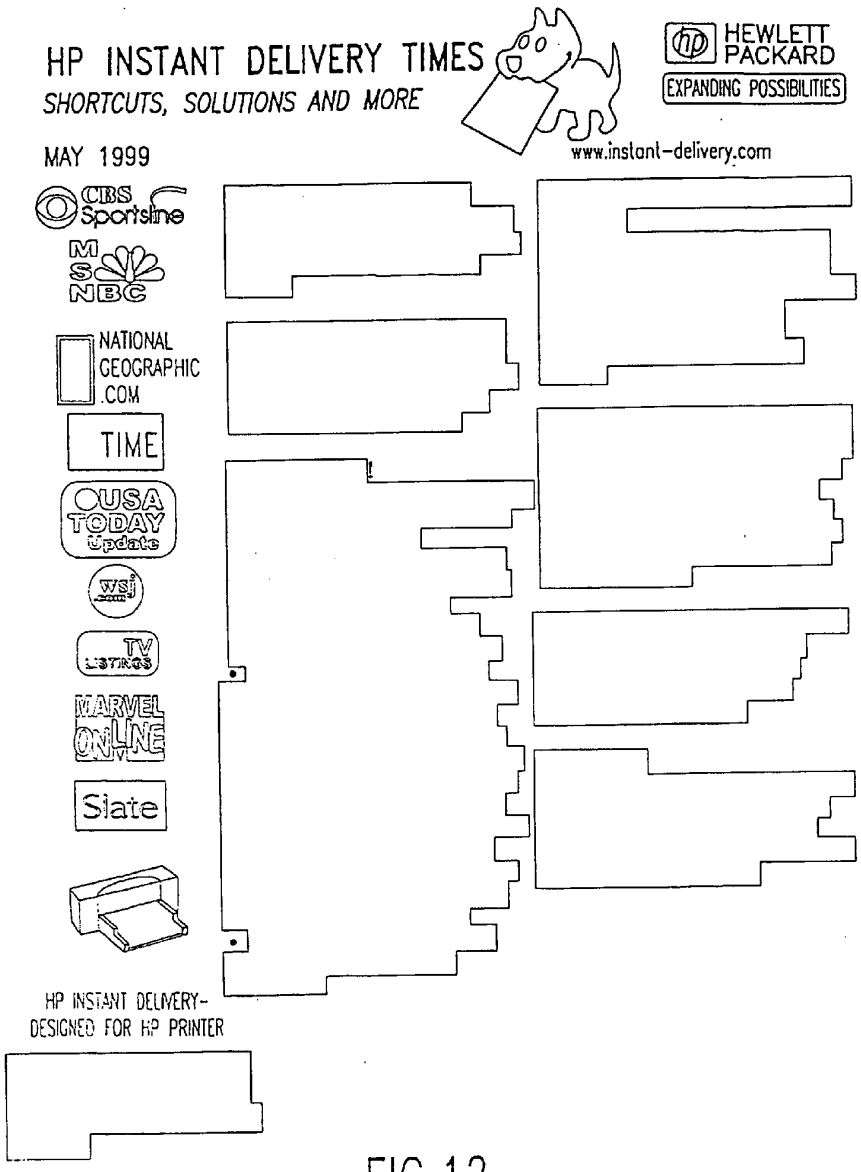


FIG.11D


HP INSTANT DELIVERY TIMES
SHORTCUTS, SOLUTIONS AND MORE
MAY 1999
HEWLETT PACKARD
EXPANDING POSSIBILITIES
www.instant-delivery.com
CBS Sportsline
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DESIGNED FOR HP PRINTER

FIG.12

Fig. 13

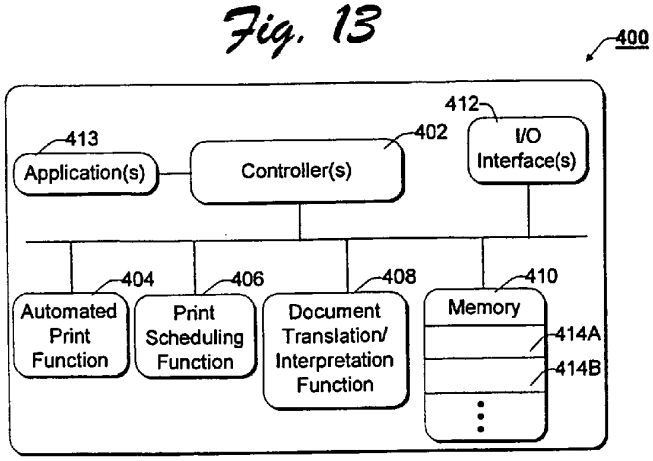

400
412
I/O Interface(s)
413
Application(s)
402
Controller(s)
404
Automated Print Function
406
Print Scheduling Function
408
Document Translation/ Interpretation Function
410
Memory
414A
414B

Fig. 14

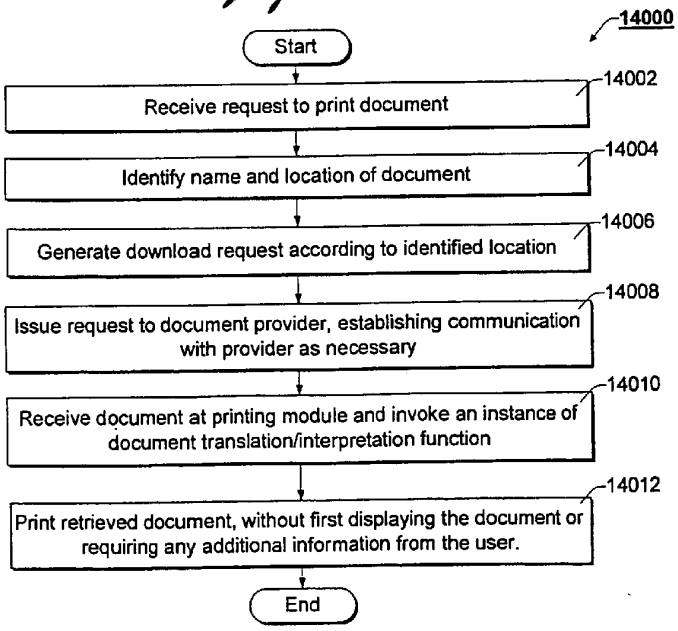
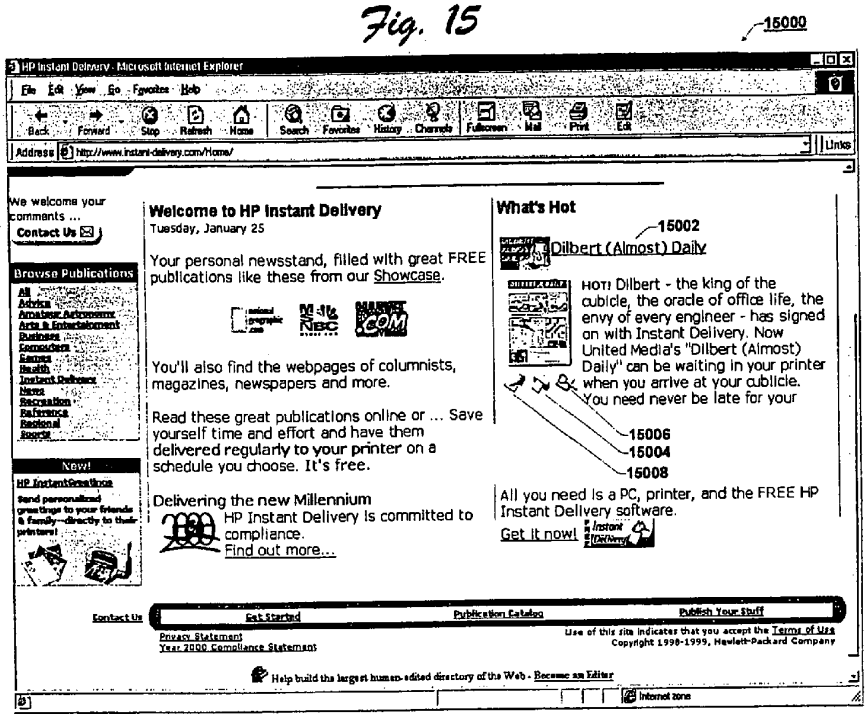

14000
Start
14002
Receive request to print document
14004
Identify name and location of document
14006
Generate download request according to identified location
14008
Issue request to document provider, establishing communication with provider as necessary
14010
Receive document at printing module and invoke an instance of document translation/interpretation function
14012
Print retrieved document, without first displaying the document or requiring any additional information from the user.
End

Fig. 15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