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(54) **Title:** METHOD AND SYSTEM FOR SELLING PRODUCTS OVER A COMPUTER NETWORK PARTICULARLY THE INTERNET
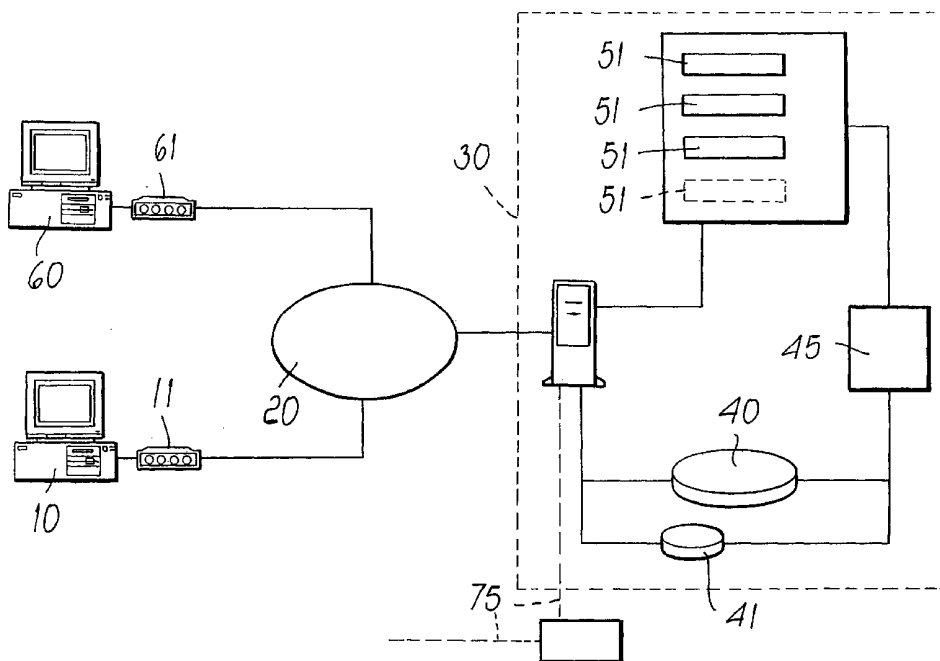
(57) **Abstract:** A method and a system for selling products over a computer network, particularly the Internet, which includes an electronic archive and a network site which internally holds a plurality of virtual stores, each of which is associated with a retailer. The system fully relieves the retailer of any computer-related effort normally required to implement a personal e-commerce site.

METHOD AND SYSTEM FOR SELLING PRODUCTS OVER A COMPUTER NETWORK, PARTICULARLY THE INTERNET

5   The present invention is in the field of the supply of services oriented to e-commerce, with reference to the methods and systems for managing and trading products over computer networks, particularly the Internet.

    It is known that, in recent years, the technological development and the growth of low-cost networking tools has radically changed the way of working in the market as regards 10   normal trading operations. As a natural consequence of the planetary spread of computer networks, with particular reference to the Internet, retailers and manufacturers have witnessed the opening of an unprecedented possibility to directly reach a continuously growing pool of potential customers, thus revolutionizing the behaviors that up to now had been conventional in the buy/sell relationship between the customer and the retailer, and 15   in all the activities related thereto.

    Many of the operations and activities conducted with conventional methods have been in fact transferred to a networked equivalent: exploration of the Internet, which is the pre-eminent computer network, allows the user to search for the products he is interested in 20   and, by virtue of the advent of e-commerce, to make purchases directly from home, after seeing which products are offered by the various retailers and at what price. The possibility to equip one's store or company with a virtual store-window which can be browsed via the Internet therefore becomes a compulsory step for every retailer, who is thus able to present, directly in the homes of the users, his entire product range.

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    Despite the enormous potential of the electronic market, however, a very large number of retailers and manufacturers are still unable, even today, to adequately take advantage of the situation, since they do not have the means, resources or know-how to undertake e-commerce, which in any case requires specific knowledge and investments.

30

The aim of the present invention is to solve the above noted problem by introducing a method and a system for selling products over computer networks which allows any number of retailers to offer their products to networked users, particularly Internet users, without requesting the retailer to have specific technological and computerized means and without the burden of having to bear the efforts and costs required for the implementation of an e-commerce site.

Within this aim, an object of the present invention is to create virtual stores for retailers, said stores being differentiated by selection, on the part of the retailer, of appropriate graphic layouts.

Another object of the present invention is to make it as simple as possible to introduce the products in the retailer's virtual store.

Another object of the present invention is to provide a system for selling products over computer networks which is at once secure and highly-performing.

This aim, these objects and others which will become apparent from the description that follows are achieved by a method for selling products over a computer network, comprising the steps of: connecting, by a retailer, to a network site of an operator and selecting a graphic template which is suitable to represent his virtual store; entering, in an electronic archive, data related to products put on sale; generating, by said operator, electronic pages based on the chosen graphic template and including the products of the retailer, the electronic pages constituting the virtual store of the retailer; activating payment procedures; placing the electronic pages in a dedicated site, which acts as container for a plurality of virtual stores.

Advantageously, the step of selecting a graphic template comprises the selection and/or modification of a graphic template from a set of predefined graphic templates made available by the operator, or the creation of a new graphic template.

Conveniently, the step of entering in an electronic archive data related to products put on sale by the retailer may include entering a selling price, an image of the product and a description of the product by means of tools provided by the operator.

5   Further characteristics and advantages of the invention will become apparent from the following detailed description, given by way of non-limitative example and accompanied by the corresponding figures, wherein:

Figure 1 is a block diagram of the system according to the present invention;

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Figure 2 is a flowchart of the method according to the present invention;

Figure 3 is a block diagram of a preferred embodiment of the system according to the invention.

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More particularly, Figure 1 is a simplified diagram of the components that constitute the system. The figure shows a retailer 10 who is connected to a computer network 20, such as the Internet, a server 30 of an operator, an electronic archive 40 managed by the operator and a repository of graphic templates 41. The operator 30, whereat the system

20   according to the invention is installed, is equipped with a server which manages an electronic archive 40 which acts as a repository for data of products entered by retailers 10 by means of a connection on the computer network 20. The electronic archive 40 comprises data identifying each registered retailer 10 as well as the characteristics and types of products linked to the retailer. The server belonging to the operator 30 is

25   furthermore connected to an archive 41 of templates which allow to characterize the electronic pages that will constitute the virtual store 51 of the retailer 10, as will become apparent hereinafter. An engine 45 operates on the archives 40 and 41 and interfaces with a site 50 which acts as container for the electronic pages generated starting from the content of the archives 40 and 41 according to the choices of the retailers 10, in order to

30   build the virtual stores 51 of each retailer and to make queries on the archive 40, as will

become apparent hereinafter.

Also with reference to Figure 1, and following the flowchart of Figure 2, the operation of the system is as follows: the retailer 10 connects to the server operated by the operator

5   30 over the computer network 20 by means of a modem 11 or equivalent means, for example an ISDN adapter or a LAN network connected to a proxy server which is in turn connected to the computer network 20. The retailer is identified by the system by comparing his login data with the data contained in the electronic archive 40. If correct recognition occurs, the retailer can access graphic pages which allow him to set up the

10   graphic layout of his virtual store 51. After this step, any material of the retailer 10 that is already present in the form of product data in the archive 40 is retrieved and checked, and the retailer 10 can process and enter new products in the archive 40. Product processing and entering can be accomplished by using any form of communication between the computer station where the retailer 10 operates and the electronic archive

15   40, for example by means of an FTP communication which allows to load into the archive the data in a given format which is preset by the operator. As an alternative, it is possible to use means provided by the operator which allow the correct entry of data according to the chosen mode by simply filling in masks or in the case of a retailer 10 who is not computerized and cannot access the computer network 20, simply by transferring to the

20   operator 30 the material to be entered into the virtual shop 51 associated with the retailer 10 by conventional means, for example by mail or fax, and giving the task of updating the archive 40 to the operator. The data related to a product can include all the data types suitable to identify and characterize it, for example a detailed description of the item, its price, availability, an image, or anything else deemed necessary by the retailer. In

25   particular, each product can be associated with a data sheet which lists its main characteristics from a technical standpoint and from a commercial standpoint. In addition to selecting the preferred graphic template and entering the products he has chosen, the retailer 10 can also provide data for filling in a data sheet related to his virtual store 51; said data sheet can be displayed when a customer 60 enters the virtual store 51 by

30   means of the site 50 by connecting to the computer network 20 over a modem 61 or

-5-

equivalent means, depending on the connection which he is equipped with. Once the retailer has completed the processing and entering of his products in the electronic archive 40, he chooses to activate the procedure for online transactions over the computer network. By doing so, the store is first checked and tested offline with respect

5   to the computer network 20 in order to check that there are no errors and that the system still operates correctly after the new data has been entered. If the checking and testing process fails, the retailer receives a warning to that effect and changes the entered data so as to make them comply with the specific requirements. If the checking and testing is positive, the procedure for online publishing of the freshly entered products is activated.

10   The entered products are then activated by the engine 45 in the electronic archive 40 and processed so as to build electronic pages which belong to the virtual store 51, inserted in the container site 50 in which, as mentioned, all the products related to all the retailers that have taken out a subscription with the operator are stored. Once the data have been actually received by the visualization system that operates online on the computer

15   network, standard procedures for payment by credit card, or alternatively other forms of payment, are activated. For this last step it is necessary to provide interfacing with a credit institution in order to implement the procedures. However, this can be done in any conventional manner by following the current traditions of e-commerce. Figure 1, for example, illustrates a connection over a dedicated computer network 75 with a router 70

20   which is capable of routing the financial transaction request to the correct recipient.

An important aspect of the present invention is the electronic archive 40 that contains the entered and processed products, which is now described in a preferred but non-limitative embodiment.

25

The electronic archive in fact constitutes the infrastructure on which the system according to the invention is based: it is formed by a series of tables which gather all the data of the various virtual shops 51 and are written so as to allow cross-querying. Together with the electronic archive 40, a search engine 45 is provided which can work by categories

30   and/or by product so that the search, on the part of a user 30, for a particular product or a

given shop is facilitated. The electronic archive thus allows to enter products and the characteristics linked thereto, for example the color, size, number and so forth, the description of the products and the price of each product, and is furthermore provided with an engine, again designated by the reference numeral 45 in the figure, which can

5   calculate the turnover for each virtual store 51, for example on a monthly or cumulative basis, so as to be able to automatically calculate the percentage that the operator receives after the transaction is completed when a customer 60 decides to purchase a product made available in one of the virtual shops 51. The same engine 45 calculates any percentages on the transactions linked to the presence of retailers and/or agents and

10   calculates and deducts the percentages on the transactions of shipping costs by quantity, product and destination, again with reference to each individual virtual store 51. Finally, the same engine 45 can generate statistics related to the purchased products. Furthermore, in addition to the complete basic services made available for correctly selling products over a computer network, the present system has a series of optional

15   services which are available at the level of the system and electronic archive and provide more practical and complete management of the virtual store 51. For example, as an optional service the operator 30 provides the retailer 10 who manages his own virtual store 51 with an appropriate client application which allows to access the part of the archive 40 that contains his data in order to modify the information contained therein

20   rapidly and straightforwardly. All the data is then updated on the central electronic archive 40 automatically, again by virtue of commands which are available by means of the client application.

Other versions of said application allow to check daily sales in order to verify the status of

25   one's virtual stock. Conveniently, said application can be simply implemented by means of the conventional interface of a navigation program, for example Microsoft Internet Explorer or Netscape Navigator.

The detailed implementation of the present invention shown in Figure 3 and described

30   herein is given merely by way of non-limitative example. It is in fact evident that many

variations can be adopted to implement the same kind of system. Figure 3 highlights the following components: a local director 310, which is connected to two servers 320 which are in turn connected to redundant switches 330 with sixteen ports, and storage tools 340 and 341 which comprise logical volumes 350, 351 which are capable of storing and

5   cloning the information contained in the electronic archive. Said logical volumes are connected to an automated backup system 360 which is programmed to start automatically every 48 hours.

In particular, the system provides clustering by hardware rather than software. With

10 respect to the conventional solution, which provides for two servers with shared storage, the storage 340 has also been divided into two units, making it redundant. The system is therefore constituted by a combined pair of servers 320 and storage units 340 which are absolutely identical and independent and upstream of which the local director 310 is placed; the director performs load balancing on both of the above mentioned devices and

15 makes the system fault-tolerant at the hardware level.

The system uses servers 320, which contain the operating system used for the operation of the machines, and a dual power supply (not shown in the figure). The storage units 340 are of the latest-generation modular type. Each storage unit, mounted for example in

20 a separate rack-type closet, contains a cabinet for the controllers and three dual-bus cabinets for the disks, each with fourteen slots. Each slot can contain 18-GB disks, for an overall allocation of more than 500 GB.

The central feature of the system is constituted by the continuous realignment between

25 the database contained in the two storage units 350, so as to have in real time two machines (server plus storage) which are the mirror image of each other, i.e., so as to provide storage mirroring. This method is generated by creating a SAN (Storage Area Network), i.e., a LAN with fiber-optic technology (distinctly more efficient than conventionally used SCSI systems), which connects all the involved devices (server 320

30 and storage units 340). Dedicated software controls the activity of the smart controllers

-8-

provided on the storage units 340, which respond to any modification applied by one storage unit 340 to the other.

5   The SAN network is constituted by two pairs of fiber-optic switches 330 with sixteen ports, to which the two servers 320 are connected by means of two pairs of FCBCK (Fiber Channel Host Control Kit) and the two storage units 320 are connected (by means of their appropriately redundant controllers). The entire system operates by means of multimode fiber-optic cables 370 in order to obtain a much higher system performance than offered by equivalent SCSI technologies.

10

The tape backup and error recovery procedure provided by the system is performed by means of an automated library by performing a scheduled procedure known as "cloning".

By using dedicated software, it is possible to schedule backups which consist of a
15   snapshot (clone) 355 of the storage units 340, copied onto another portion of storage. This system, known as "hot backup", allows to restore at any point in time a site, a portion of a site, a folder or even a single file that has become corrupted or has been deleted by mistake by the user or by the system administrator. Next to this, the conventional system of tape backups allows to store the tape copies in safes located elsewhere with respect to
20   the site of the server 320, thus allowing data recovery even in extreme disaster situations (fire, theft).

The system thus constituted has leading-edge technical characteristics from the point of view of performance and redundancy. The presence of a local director 310 in fact allows
25   to spread the load among the two servers 320, which differently from typical cluster systems, in which one machine is idle, are actually used in parallel. Real-time mirroring furthermore provides true redundancy of the data pool. The implementation of a hot backup system based on the concept of snapshots taken at scheduled intervals, for example every 4 hours, allows the system to restore the past situation even at the level of
30   the individual file in a handful of minutes and without any risk. The system is furthermore

fully redundant at the hardware level both as regards controls and as regards the power supplies and the switches 330.

The intended aim and all the objects have thus been achieved: in particular, a method

5   and a system have been obtained which open the gates of e-commerce even to retailers who are not computer-literate, in any case relieving the retailers from the burden of building and managing e-commerce sites.

Clearly, the description of the above described preferred embodiments is given only by

10   way of non-limitative example.

The method and the system according to the invention is susceptible of numerous modifications and variations which can be clearly deduced logically or operationally by the expert in the field, and all of which are within the scope of the appended claims. For

15   example, it is evident for the expert in the field that the use of the described hardware devices is not a constraint for the purposes of the invention, and that said devices can be replaced with other equivalent ones.

CLAIMS

1. A method for selling products over a computer network, comprising the steps of:

   -- connecting, by a retailer, to a network site of an operator;

5   -- selecting, by said retailer, a graphic template;

   -- entering, in an electronic archive, data related to products put on sale by said retailer;

   -- generating, by an operator, electronic pages which are based on said chosen graphic template and on said products, said electronic pages constituting a virtual

10   store of said retailer;

   -- activating payment procedures;

   -- placing said electronic pages in a dedicated site, which acts as container for a plurality of said virtual stores.

15   2. The method according to claim 1, wherein said step of selecting a graphic template comprises:

   -- selecting a graphic template from a set of predefined graphic templates made available by said operator;

   -- modifying a graphic template selected from a set of predefined graphic templates

20   made available by said operator; or

   -- creating a new graphic template.

3. The method according to claim 1, wherein said step of entering in an electronic archive data related to products put on sale by said retailer comprises:

25   -- entering a selling price;

   -- entering an image of the product;

   -- entering a description of the product.

4. A system for selling products over a computer network, comprising an electronic

30   archive and a network site, characterized in that said network site comprises a plurality of

electronic pages which constitute a plurality of virtual stores, each of which is associated with a retailer, said system further comprising means for trading products found in said electronic archive.

5   5. The system according to claim 4, characterized in that it comprises means for generating said electronic pages starting from a graphic template selected by said retailer.

6. The system according to claim 4, characterized in that it comprises means for entering
10   said products in said electronic archive, said means operating according to predefined masks.

7. The system according to claim 4, characterized in that it comprises means for allowing clients to perform online payment of purchased products.

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8. The system according to claim 4, characterized in that it comprises means for calculating the turnover of each one of said virtual stores.

9. The system according to claim 4, characterized in that it comprises means for
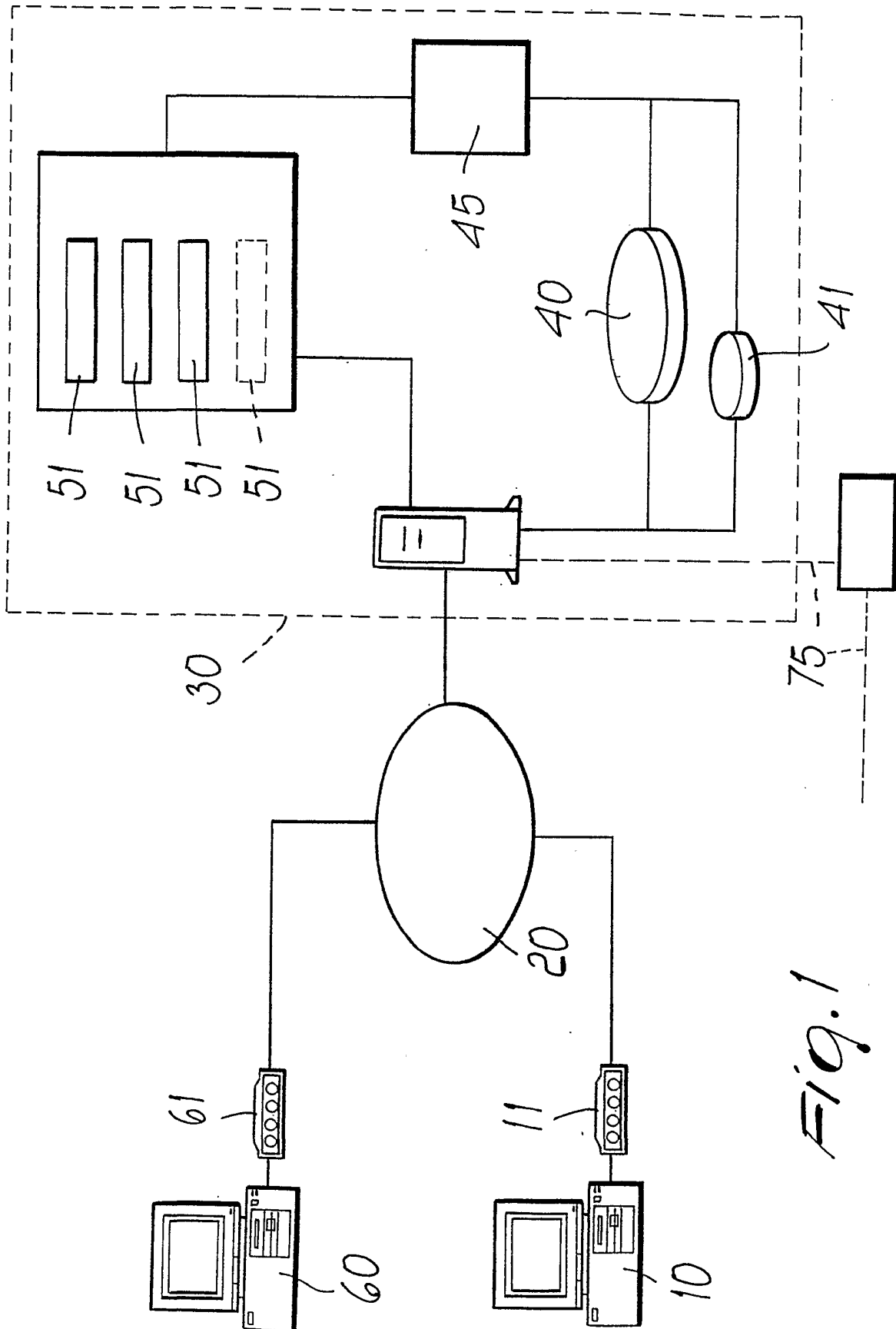20   generating statistics on purchased products.

Fig.1
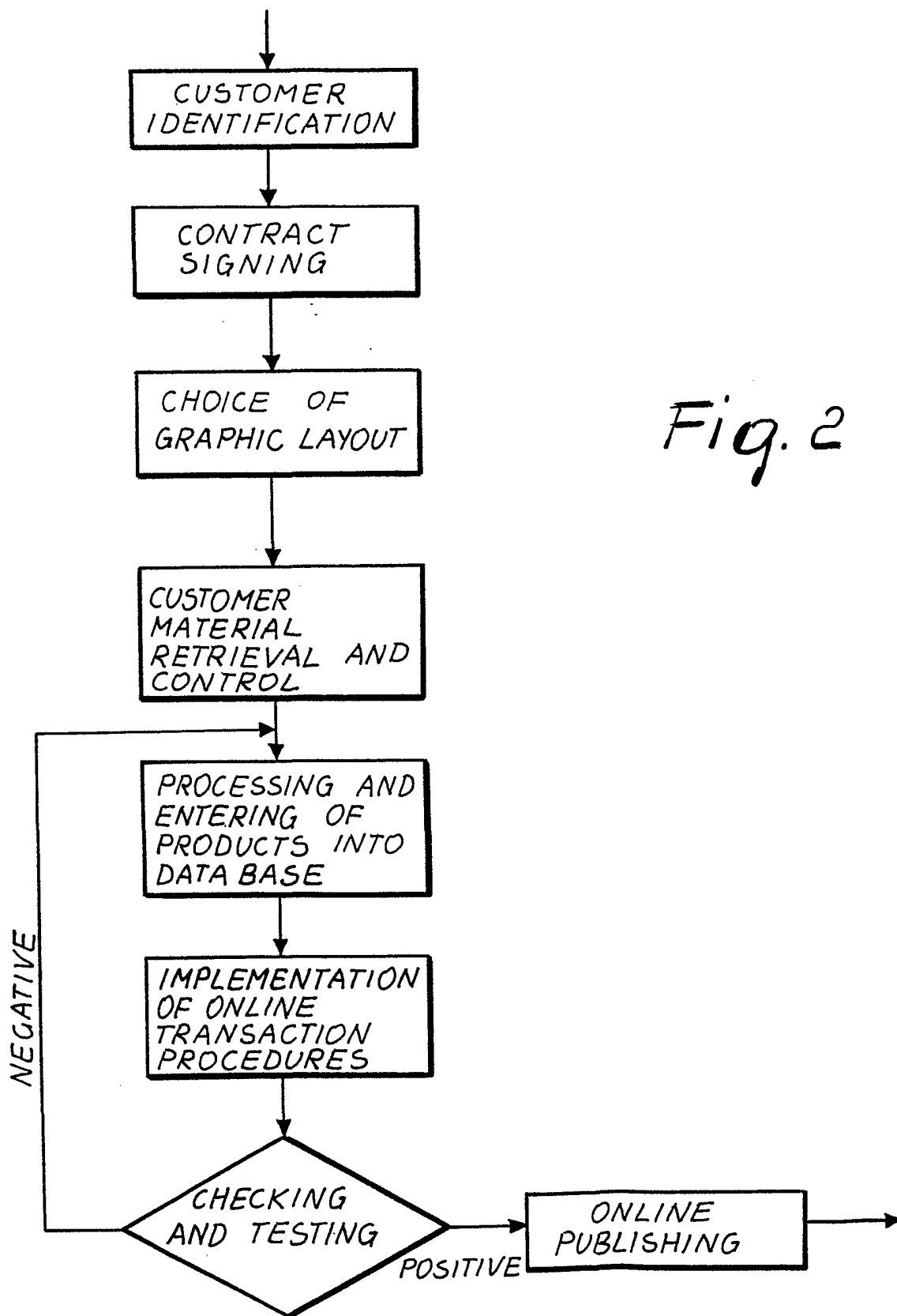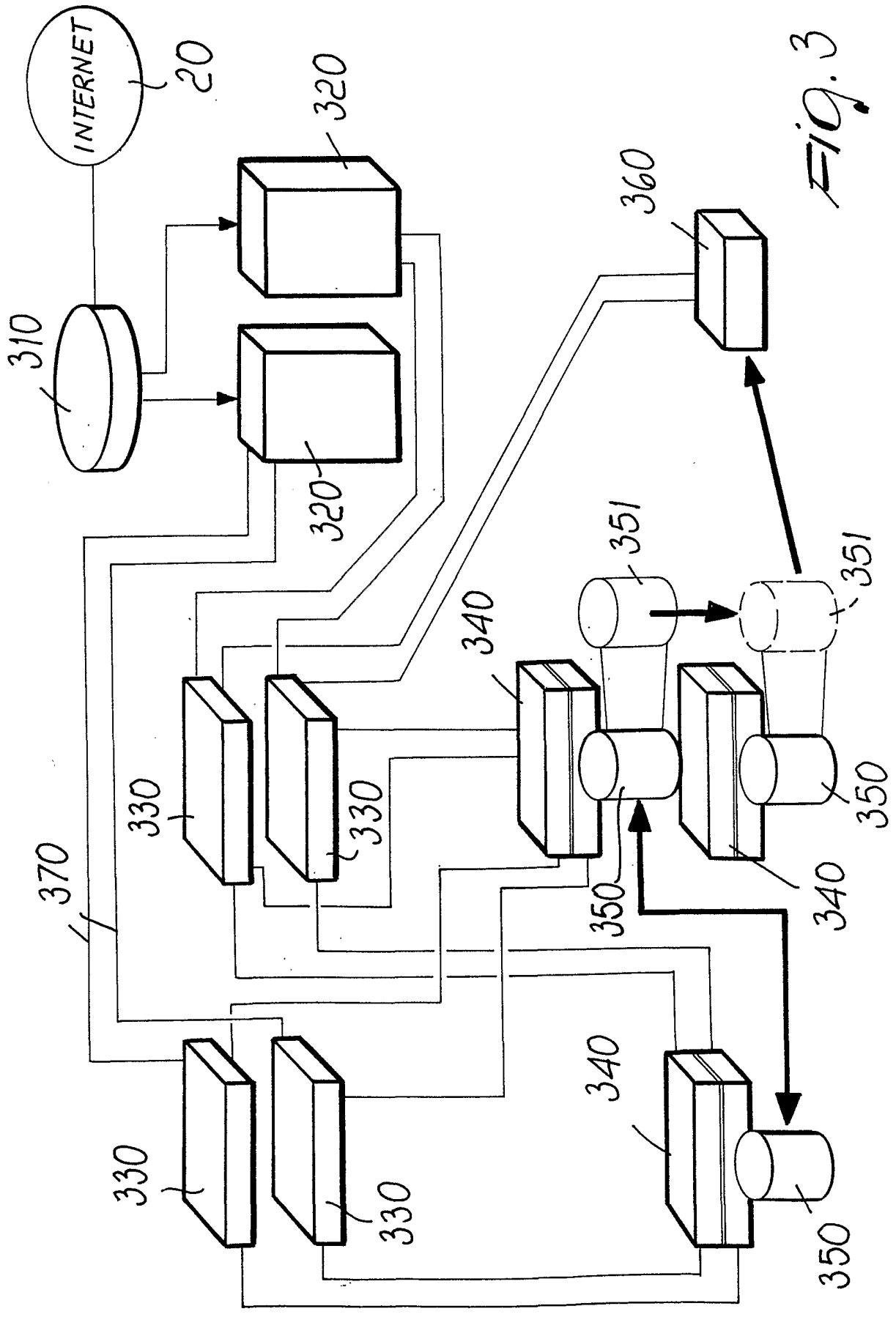
CUSTOMER
IDENTIFICATION

CONTRACT
SIGNING

CHOICE OF
GRAPHIC LAYOUT

CUSTOMER
MATERIAL
RETRIEVAL AND
CONTROL

PROCESSING AND
ENTERING OF
PRODUCTS INTO
DATA BASE

IMPLEMENTATION
OF ONLINE
TRANSACTION
PROCEDURES

NEGATIVE

CHECKING
AND TESTING

POSITIVE

ONLINE
PUBLISHING

Fig. 2

Fig. 3

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7   G06F17/60   G07F19/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7   G06F   G07F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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A	EP 0 889 421 A (YAHOO INC) 7 January 1999 (1999-01-07) page 2, line 32 - line 47 page 3, line 8 -page 4, line 14	1-9
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| X | Further documents are listed in the continuation of box C. | | X | Patent family members are listed in annex. |

° Special categories of cited documents :

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Date of the actual completion of the international search	Date of mailing of the international search report
25 April 2002	07/05/2002

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo nl, Fax: (+31–70) 340–3016	Lavin Liermo, J

Form PCT/ISA/210 (second sheet) (July 1992)

International Application No
PCT/IT 00/00510

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