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CA 2419323 A1 2002/02/21

(21) 2 419 323

(12) DEMANDE DE BREVET CANADIEN
CANADIAN PATENT APPLICATION

(13) A1

(86) Date de dépôt PCT/PCT Filing Date: 2001/08/16
(87) Date publication PCT/PCT Publication Date: 2002/02/21
(85) Entrée phase nationale/National Entry: 2003/02/12
(86) N° demande PCT/PCT Application No.: BE 2001/000136
(87) N° publication PCT/PCT Publication No.: 2002/015059
(30) Priorité/Priority: 2000/08/17 (09/640,276) US

(51) Cl.Int.^{7}/Int.Cl.^{7} G06F 17/60

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(54) Titre : SYSTEME ET PROCEDE FACILITANT DES TRANSACTIONS IMPLIQUANT LA DISTRIBUTION D'EQUIPEMENT ET L'APPROVISIONNEMENT ET/OU LE SERVICE DE L'EQUIPEMENT CONSECUTIFS A L'INSTALLATION

(54) Title: SYSTEM AND METHOD FOR FACILITATING TRANSACTIONS INVOLVING DISTRIBUTION OF EQUIPMENT AND POST-INSTALLATION SUPPLY AND/OR SERVICE OF THE EQUIPMENT

(57) Abrégé/Abstract:
An electronic commerce system features a website that permits a customer to request information, request a proposal, and/or to order equipment, and to request accounting information on pending or existing orders. The website also enables monitoring of the status of manufacturing, delivery, and installation at the plant of and ordered device. Controllers situated at the installation site communicate with the website server to further permits the customer and/or the manufacturer, distributor, or other interested party to monitor use of the equipment by any number of customers following installation, enabling integrated sale and packaging not only of the equipment, but also of subsequent service or supply.

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
21 February 2002 (21.02.2002)

PCT

(10) International Publication Number
WO 02/15059 A2

(51) International Patent Classification[7]: G06F 17/60

(21) International Application Number: PCT/BE01/00136

(22) International Filing Date: 16 August 2001 (16.08.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
09/640,276 17 August 2000 (17.08.2000) US

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(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

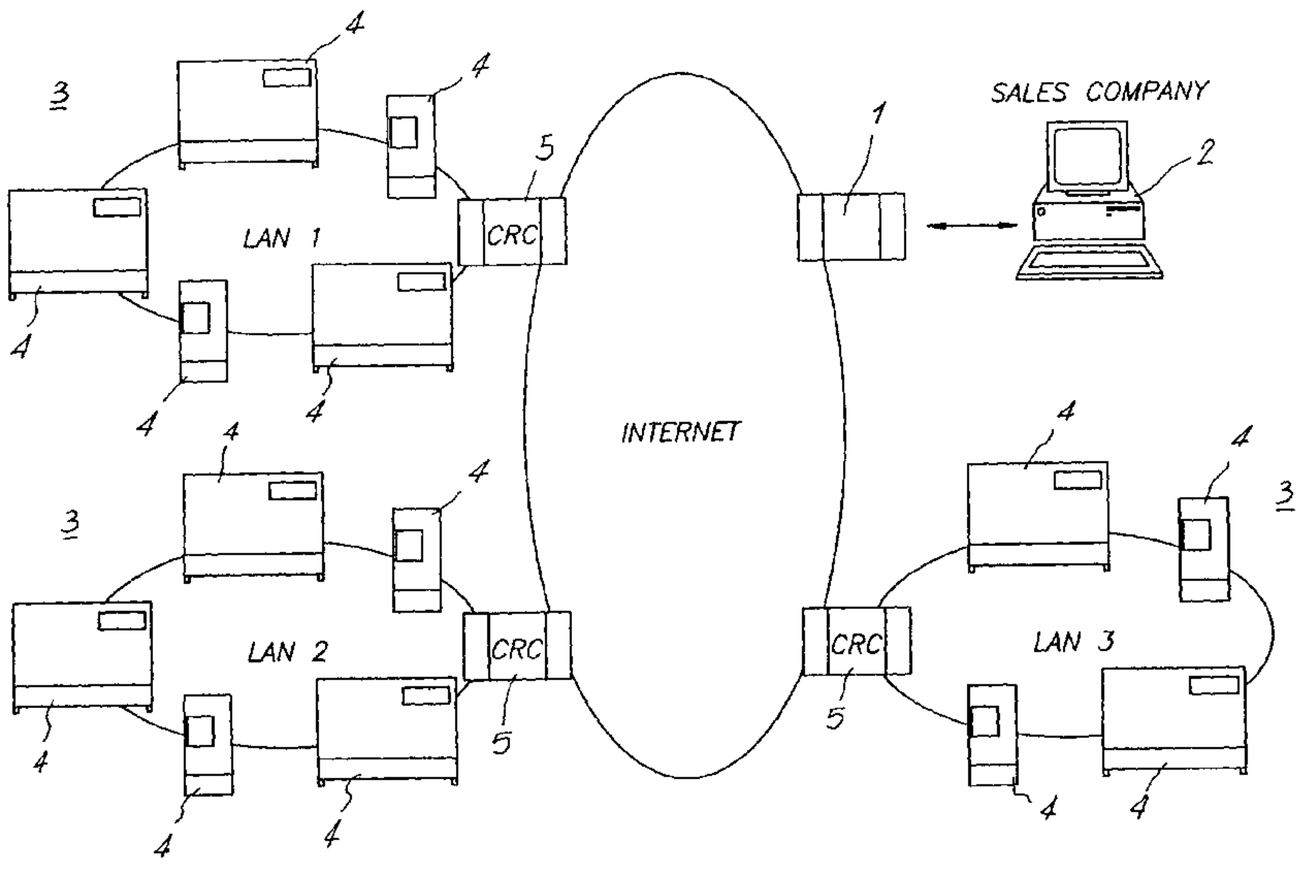
(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP,*

[Continued on next page]

(54) Title: SYSTEM AND METHOD FOR FACILITATING TRANSACTIONS INVOLVING DISTRIBUTION OF EQUIPMENT AND POST-INSTALLATION SUPPLY AND/OR SERVICE OF THE EQUIPMENT



(57) Abstract: An electronic commerce system features a website that permits a customer to request information, request a proposal, and/or to order equipment, and to request accounting information on pending or existing orders. The website also enables monitoring of the status of manufacturing, delivery, and installation at the plant of and ordered device. Controllers situated at the installation site communicate with the website server to further permits the customer and/or the manufacturer, distributor, or other interested party to monitor use of the equipment by any number of customers following installation, enabling integrated sale and packaging not only of the equipment, but also of subsequent service or supply.

WO 02/15059 A2

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KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

— *of inventorship (Rule 4.17(iv)) for US only*

Published:

— *without international search report and to be republished upon receipt of that report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

System and method for facilitating transactions involving distribution of equipment and post-installation supply and/or service of the equipment

This invention generally relates to the field of electronic commerce, and to a system and method for facilitating equipment-related transactions that require a continuing relationship with a customer following installation of the equipment. For example, the system and method of the invention may be used to facilitate sale or leasing of equipment, including follow-up service or supply, or the system and method of the invention may involve distribution of equipment incident to a post-installation supply or service contract.

More particularly, the invention relates to a system and method that enables a customer to, from a remote location using an open network such as the Internet, perform the following actions relating to sale, lease, and/or distribution of equipment: (i) remotely request a proposal or information related to equipment offered for sale, lease, or distribution as part of a bundled services/supply contract, (ii) place an order for the equipment; (iii) request information concerning accounting and/or status of the order from manufacture to installation; and (iv) monitor and/or control the equipment following installation and, if needed, (v) determine the location or coordinates of the equipment. The invention thus enables a customer to follow on a daily basis the progress of manufacture, shipping, and installation of the equipment, to monitor running and supply of the equipment following installation, and

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further to access to real costs associated with installation and running of the equipment.

In addition, the invention relates to a system and method that enables not only the customer, but also the distributor or manufacturer of the equipment to monitor the progress of a sale, lease, or distribution of the equipment, including monitoring of the manufacture, shipping, and/or installation of the device, and to further monitor and/or control the equipment following installation in order to monitor and/or schedule the need for services or supplies related to use of the equipment.

Systems and methods that utilize the Internet to facilitate ordering and shipping of consumer items are well-known. In addition, it has been proposed to use the Internet to facilitate the supply of parts used in manufacturing, and for the purpose of inventory management in general. In general, in these systems, the purchaser uses the Internet to contact the manufacturer or distributor of the product and, in many cases, pay for the product, after which the relationship between the customer and the supplier is terminated.

In many industries, however, the sale of a product is only the beginning of a relationship between the seller and the customer. If the product is in the form of equipment, defined most broadly as any device requiring continuing service and/or supplies following distribution, the relationship may involve extensive pre- and post-installation contact between the customer and the supplier, between the customer and the equipment, and between the supplier and the equipment. In many cases,

the supplier of equipment does not begin to manufacture the equipment until a sale is completed, and must keep the customer informed of progress in manufacture, as well as shipping and delivery or installation dates. In addition, the customer may require post-installation service or maintenance calls, or deliver of supplies over an extended period following installation.

Despite the potential for realizing significant efficiencies from integration of pre- and post-installation functions, which benefits have been realized in other areas of commerce such as inventory management and the supply of parts for manufacturing, current e-commerce systems do not provide for such integrated pre- and post-installation, and thus businesses involving sales of equipment requiring extensive pre- or post-installation contact between the customer and supplier have generally had to rely on pre-Internet contracting systems and methods, even though the equipment sold or contracted-for might be state-of-the-art computerized equipment.

At present, the Internet is used only to facilitate sales and to track shipping. Many electronic commerce sites offer the option of tracking shipping and delivery dates, but none offers the possibility of tracking progress in manufacture and of locating the coordinates of the equipment with fixed installation. Once the equipment is installed or delivered to the customer, the seller may schedule automatic deliveries or service calls, but deliveries or service calls at times other than those listed on the schedule must be initiated by the customer. In some cases, the location of the customer or user of

the equipment might not even be known and thus even automatic deliveries or service calls cannot be scheduled, there being no possibility using present systems of making use of WAP, GPS, or the Internet to locate the customer or user.

It is accordingly a first objective of the invention to provide an electronic commerce system which integrates not only the processes of ordering and delivering equipment, but also manufacture of the equipment and the provision of supplies or services following delivery and installation.

It is a second objective of the invention to provide a system and method for facilitating transactions involving sale, leasing, manufacture, and/or delivery of equipment, and which further enables monitoring of the equipment following installation or delivery so as to optimize or facilitate delivery of supplies and services, thereby providing an integrated commerce system that ensures a steady stream of revenue for a particular product with a minimum of overhead.

It is a third objective of the invention to provide a system and method of facilitating sale, leasing, or distribution of equipment by providing for tracking and/or monitoring of the equipment during manufacture, as well as during shipping, delivery, and/or installation.

It is a fourth objective of the invention to provide a method of selling, leasing, or otherwise distributing equipment, and of providing post-delivery or post-installation services or products in an integrated

manner.

It is a fifth objective of the invention to provide a system and method of providing or facilitating accounting services related to the sale, leasing, distribution, manufacture, installation, and use of equipment and corresponding post-installation products or services.

It is a sixth objective of the invention to provide a system and method of locating the exact coordinates of the fixed equipment and maintaining visual and audio contact after installation, thereby offering the additional possibilities of locating the final destination and coordinates of the equipment after initial delivery to a different location, viewing a live image of the equipment, and/or listening to the actual sound emitted by the equipment using an open network such as WAP, GPS, and the Internet.

It is a seventh objective of the invention to provide a remote system and method of controlling and distributing the electricity and/or power needs of the equipment and accessories to provide an efficient use of the equipment.

These objectives are achieved, in accordance with the principles of a preferred embodiment of the invention, by providing an electronic commerce system featuring an Internet website that permits a customer to request information, request a proposal, and/or to order a device, which permits the customer to request accounting information on pending or existing orders, and on the status of manufacturing, delivery, and installation at the customer's plant of ordered equipment, and which

further permits the customer and/or the manufacturer, distributor, or other interested party to monitor use of the equipment following installation. To permit monitoring and/or control of the equipment, the equipment simply needs to be connected with a monitoring and/or controlling device, and the monitoring and/or controlling device needs to be connectable for data transfer over the Internet to the customer's website.

These objectives are further achieved, in accordance with the principles of the preferred embodiment of the invention, by providing an electronic commerce method featuring the provision of an Internet website that permits a customer to request information, request a proposal, and/or to order a device, which permits the customer to request accounting information on pending or existing orders, and on the status of manufacturing, delivery, and installation at the customer's plant of ordered equipment, and which further permits the customer and/or the manufacturer, distributor, or other interested party to monitor and/or control use of the equipment following installation. According to the method of the invention, the equipment may be sold or leased separately, or may be distributed as part of a supply or service contract, which may be negotiated through the website.

By way of example, the device in question may be a compressed air system, and the product provided following installation may be in the form of compressed air. The system and method of the invention enables the manufacturer or a distributor of compressors to monitor and/or control complete compressor installation of a

number of customers through the intermediary of a device which monitors and/or controls compressed air usage and electricity/power consumption or requirements, and which makes the information available to the manufacturer or distributor over the Internet.

From the day a customer's compressor installation is started up, the installation is remotely monitored via the Internet, so that the supplier of compressed air can determine how much air is being consumed, how much energy and/or electricity is being consumed, how much money the customer owes, and when servicing is needed. As a result, it is possible to eliminate the need to even sell or lease the compressor, the supplier of air retaining ownership of the compressor and charging solely for the air supplied.

Alternatively, if the machines are sold to the customer, the present invention still provides convenient options for selling services or supplies.

Figure 1 is a schematic diagram of a system for facilitating transactions relating to the sale, leasing, or manufacture of devices that involve a continuing relationship with the customer following the sale, lease, or distribution of the device according to a preferred embodiment of the invention, and illustrating the specific example of a compressed air system.

Figure 2 is a schematic diagram of a website designed to implement the system and method of the invention, and in particular illustrating portions

of the method of the invention.

Figures 3-5 are schematic diagrams showing further aspects of the website of Fig. 2.

A illustrated in Fig. 1, a system for facilitating transactions relating to the sale, leasing, or manufacture of devices that involve a continuing relationship with the customer following the sale, lease, or distribution of the device according to a preferred embodiment of the invention includes an Internet connection 1 and a computer or server 2 arranged to be accessed from the Internet. The website presented by the server 2 will be described below in connection with Fig. 2.

Also illustrated in Fig. 1 are a plurality of device or machine installations in various plants 3. Each plant includes one or more devices or machines 4, and controllers 5 arranged to be connected to the Internet via a dial-up connection, or a virtual private network. The controllers 5 are arranged to monitor and control machines 4 to determine, by way of example, when service or supplies are required and what combination of machines to use, thus maximizing the efficiency of the installation. The machines 4 and controllers 5 are connected to each other via, for example, local area networks. Controllers 5 transfer data concerning operation of the machines 4 to server 2 via a secure connection over the Internet (or alternatively, over a non-Internet-based communications path such as a satellite link).

Although it will be appreciated that the invention is not necessarily to be limited to a particular type of machine or monitor, the machines illustrated in Fig. 1 are in the form of air compressors and ancillary equipment. Controllers 5 provide access by the customer and/or the compressed air provider concerning how much air is being consumed, how much energy is consumed, and how much money the customer owes for the energy consumed. In addition, controllers 5 may be arranged to transmit information concerning when service, such as replacement of a filter, an adsorbing agent in a dryer, and so forth, is needed, and also machine operation parameters such as temperatures and pressure. Optionally, the controllers 5 may also be arranged to receive commands from the main office, for example to give the compressed air provider the ability to start and shut down compressor elements as necessary for service, or because of non-payment.

In addition, in an installation with several compressors 4, some of which may have different power requirements, the customer can use the information provided by a controller 5 to choose which machines or elements are used to produce the demanded compressed air. This can be done automatically by the controller or manually by the customer so that energy is minimized and/or so that all compressor elements have approximately a same total time of activity.

Thus, via Internet control, the invention enables remote monitoring, administration, billing and advice by the manufacturer, a supplier, a sales agent (illustrated), or a service provider, at any convenient time, eliminating the need for regular visits to the customer.

As illustrated in Fig. 2, the invention provides an integrated website at server 2. The integrated website has the capability of entertaining new orders, changes in orders, and other services associated with the sale, leasing, and/or distribution of equipment, as well as post-distribution service and supply made possible by the inclusion of controllers 5, as illustrated in Fig. 1. Access to the website is gained though registration, during which the customer is given a registration number or code which enables the customer to access the "Internet site" and request information, request a proposal, and/or place an order for equipment. In addition, the invention provides for acceptance of the purchase order, monitoring of equipment manufacturing, and remote monitoring of installation, to the point of locating the coordinates of the installation, viewing a live video feed from the installation, and listening to the sound emitted from the equipment and installation, as well as setting up service contracts or supply accounts, and monitoring of and technical support for the installed equipment.

For a new customer, as illustrated in Fig. 3, the public area of the website includes a customer registration form, which is used to set up a record in a customer database. Upon filling out the form and setting up of a record in the customer database, a copy may be given to a sale agent, and a password is given to the customer. A registered customer may then enter the site using the password and submit an enquiry concerning available equipment, including financial calculations and the like, or solicit a proposal and submit a purchase order,

possibly with assistance of the sales agent.

Once a purchase order has been submitted and approved, the equipment has been manufactured, and the equipment installed, the customer may re-enter the website, as illustrated in Fig. 4, in order to view data resulting from the monitoring equipment. In the case of an air compressor installation, the customer may view an air consumption profile, an air consumption flow accumulation, power accumulation, and such factors as dew point, pressure, and temperature at the plant. The ari consumption of the plant corresponds to the air delivery by the compressors. The customer may also view a live video feed from the installation, and listen to the sound emitted from the equipment and installation. This information is used to update the customer's account, which may be viewed at the same time. In addition, payments may be made through the website using well-known techniques for securing the payment information, the customer may request technical support, and orders may be changed or reviewed.

From the supplier side, illustrated in Fig. 5, the purchase order is initially acknowledged by the company responsible for supply, which in turn contracts for manufacture of the equipment, and also for shipping, installation, and commissioning. Once commissioned, with the controller connected to the Internet at least periodically or in response to a call-up, the operation of the machinery is monitored and/or controlled and, in case of a service warning, shutdown, and the local sales company or service technician is contacted by e-mail, SMS, GPS, or similar communications over the Internet or

over another communications medium.

Upon receiving a service request or warning, the sales company or technician can view the unit over the Internet and acknowledge to the customer that the problem is being dealt with or possibly, in some cases, directly fix the problem. In the case of air compressor installations, service planning or scheduling can use the following information: unit running hours or unit accumulated volume, measured and calculated parameters, previous service history, customer and customer location, other units within a specified area, and service personnel availability and location.

Having thus described a preferred embodiment of the invention in sufficient detail to enable those skilled in the art to make and use the invention, it will nevertheless be appreciated that numerous variations and modifications of the illustrated embodiment may be made without departing from the spirit of the invention.

For example, the website may be implemented on a single server or multiple servers, the equipment may include machines other than compressors, and the operator of the website may be a product distributor, servicer or supplier of the equipment. Purchase orders may be eliminated entirely in favor of service contracts for the products supplied to the equipment, such as air to compressors, fuel to electric generators, toner cartridges to printers, gas to furnaces, and so forth.

Accordingly, it is intended that the invention not be limited by the above description or accompanying

drawings, but that it be defined solely in accordance with the appended claims.

Claims.

1.- A system for facilitating transactions relating to the sale, leasing, or distribution of equipment that involves a continuing relationship with customers or the equipment following the sale, lease, or distribution of the equipment, characterised in that it comprises:
- a website located at a server (2) through which the customers may place orders for equipment (4);
- at least one controller (5) situated at an installation of said equipment (4);
- a controller (5) situated at said installation for establishing a communications link between said equipment (4) and said server (2),
wherein said controller (5) collects and transmits data concerning said equipment (4) to said server (2), and wherein access to said data is obtained through said website.

2.- A system as claimed in claim 1, characterised in that said controller (5) is arranged not only to collect and transmit data concerning said equipment (4) to said server (2), but also to enable remote control of said equipment (4).

3.- A system as claimed in claim 1 or 2, characterised in that said controller (5) is arranged not only to collect and transmit data concerning said equipment (4), but also to enable location of said equipment (4).

4.- A system as claimed in either one of claims 1 to 3, characterised in that said controller (5) is arranged to

further provide visual and audio information concerning said equipment (4) and equipment installation.

5.- A system as claimed in either one of claims 1 to 4, characterised in that said website further enables the customers to, from a remote location using an open network such as the Internet, perform the following actions relating to the sale, lease, or distribution of the equipment (4): (i) remotely request a proposal or information related to equipment (4) offered for sale, (ii) place an order for the equipment (4); (iii) request information concerning accounting or status of the order from manufacture to installation; and (iv) monitor the equipment (4) following installation.

6.- A system as claimed in claim 5, characterised in that said website further enables the customers to, from a remote location, control said equipment (4) following installation.

7.- A system as claimed in either one of claims 1 to 6, characterised in that said website further enables a distributor or manufacturer to monitor progress of the sale, lease, or distribution of the equipment (4).

8.- A system as claimed in claim 7, characterised in that said website further enables monitoring of manufacture, shipping, or installation of the equipment (4), as well as monitoring of the equipment (4) following installation in order to provide services or supplies related to use of the device.

9.- A system as claimed in either one of claims 1 to 8,

characterised in that said website further enables a customer to follow a progress of manufacture, shipping, and installation of the equipment (4).

10.- A system as claimed in claim 9, characterised in that said website provides access to real costs of manufacture, shipping, installation, and subsequent supply and service.

11.- A system as claimed in either one of claims 1 to 10, characterised in that said equipment includes air compressors (4), and said monitored data includes air delivery by said compressors (4).

12.- A system as claimed in either one of claims 1 to 11, characterised in that said monitored data includes data concerning power consumed or required by said equipment.

13.- A system as claimed in claims 11 and 12, characterised in that said distribution of equipment (4) is incident to a service contract for supply of said air.

14.- A method of facilitating transactions relating to the sale, leasing, or distribution of equipment (2) that involves a continuing relationship with customers or the equipment (4) following the sale, lease, or distribution of the equipment (4), characterised in that it comprises:
- providing a website located at a server (2) through which the customers may place orders for equipment (4);
- situating at least one controller (5) at an installation of said equipment (4);
- situating a controller (5) at said installation for establishing a communications link between said equipment

(4) and said server (2);

- causing said controller (5) to collect and transmit data concerning said equipment (4) to said server (2); and

- obtaining access to said data through said website.

15.- A method as claimed in claim 14, characterised in that it further comprises the step of remotely controlling said equipment (4) through said communications link.

16.- A method as claimed in claim 15, characterised in that it further comprises the step of remotely locating said equipment (4) through said communications link.

17.- A method as claimed in claim 15 or 16, characterised in that it further comprises the step of providing visual and audio information concerning said equipment (4) and equipment installation through said communications link.

18.- A method as claimed in either one of claims 15 to 17, characterised in that it further comprises the step of enabling customers to, from a remote location using an open network such as the Internet, performing the following actions relating to the sale, lease, or distribution of the equipment (4): (i) remotely request a proposal or information related to the equipment (4) offered for sale, (ii) place an order for the equipment (4); (iii) request information concerning accounting or status of the order from manufacture to installation; and (iv) monitor or control the equipment (4) following installation.

19.- A method as claimed in either one of claims 15 to 18, characterised in that it further comprises the step of enabling, through said website, monitoring of progress of the sale, lease, or distribution of the equipment (4).

20.- A method as claimed in claim 19, characterised in that it further comprises the step of enabling, through said website, monitoring of manufacture, shipping, or installation of the equipment (4), as well as monitoring or control of the equipment following installation in order to provide services or supplies related to use of the equipment (4).

21.- A method as claimed in either one of claims 15 to 20, characterised in that it further comprises the step of enabling, through said website, a customer to follow a progress of manufacture, shipping, and installation of the equipment (4).

22.- A method as claimed in claim 21, characterised in that it further comprises the step of, through said website, providing access to real costs of manufacture, shipping, installation, and subsequent supply and service.

23.- A method as claimed in either one of claims 15 to 22, characterised in that said equipment includes air compressors (4), and said monitored data includes air delivery by said compressors (4).

24.- A method as claimed in claim 23, characterised in that said distribution of equipment (4) is incident to a service contract for supply of said air.

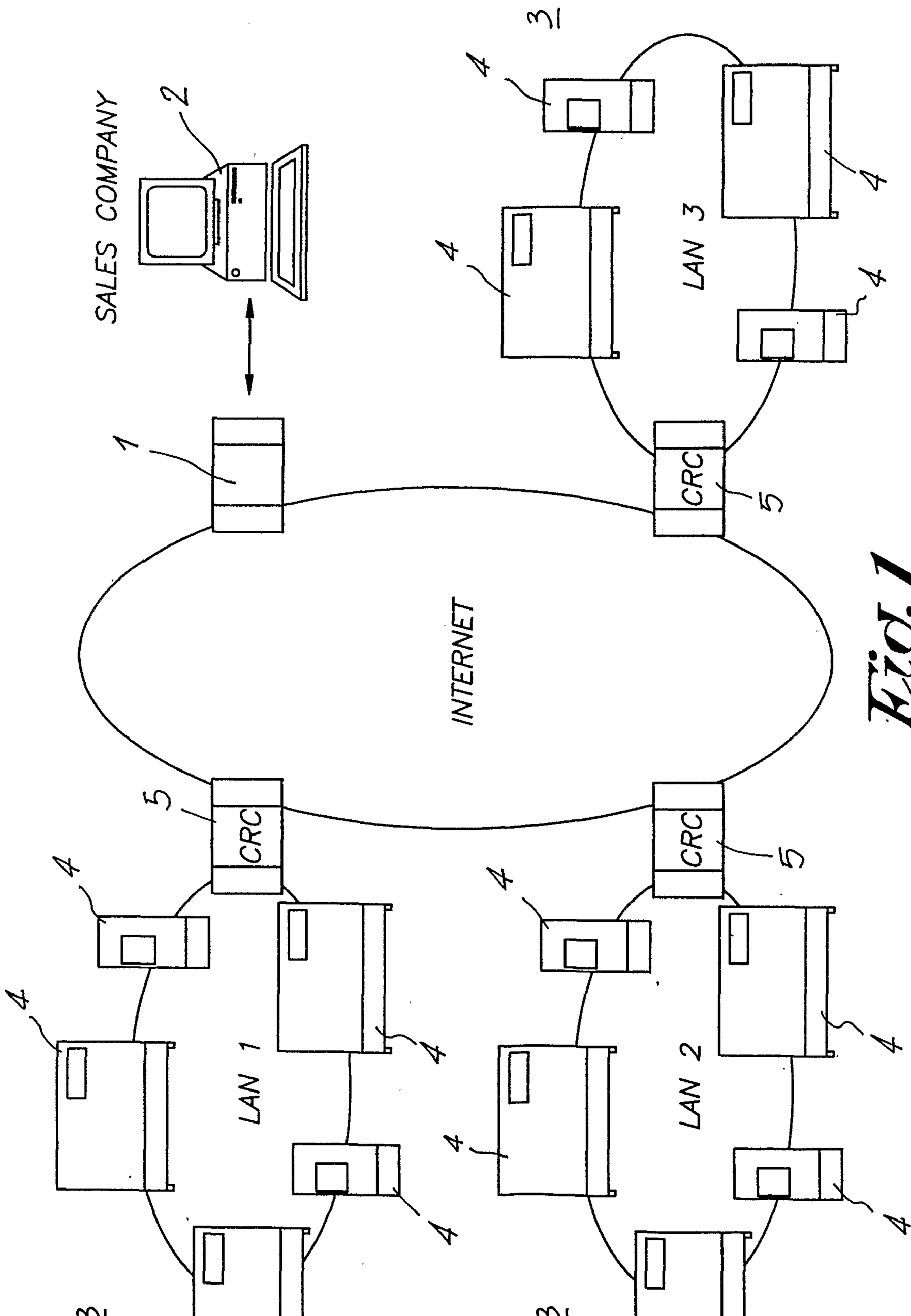


Fig. 1

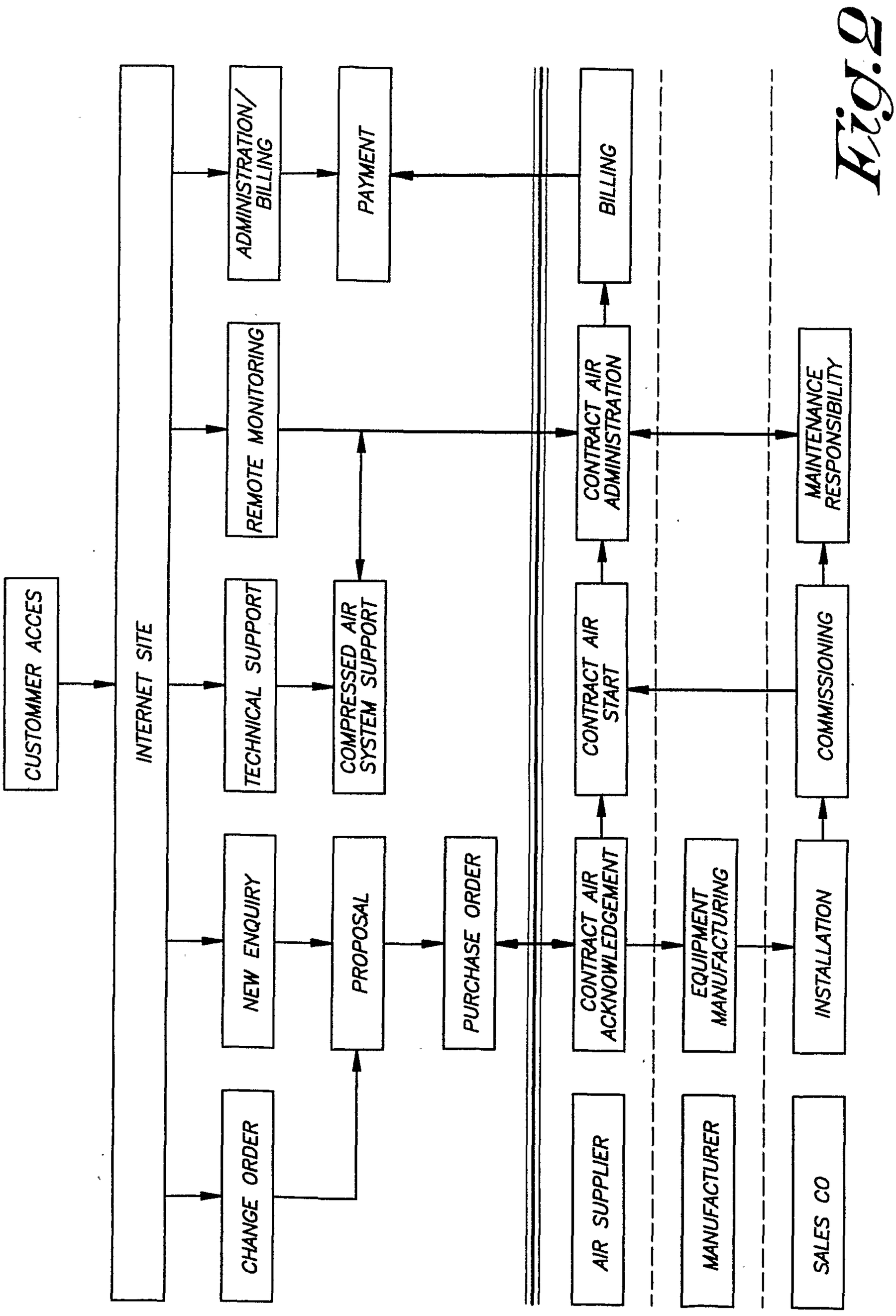

CUSTOMMER ACCES
INTERNET SITE
ADMINISTRATION/ BILLING
PAYMENT
BILLING
REMOTE MONITORING
CONTRACT AIR ADMINISTRATION
MAINTENANCE RESPONSIBILITY
TECHNICAL SUPPORT
COMPRESSED AIR SYSTEM SUPPORT
CONTRACT AIR START
COMMISSIONING
NEW ENQUIRY
PROPOSAL
PURCHASE ORDER
CONTRACT AIR ACKNOWLEDGEMENT
EQUIPMENT MANUFACTURING
INSTALLATION
CHANGE ORDER
AIR SUPPLIER
MANUFACTURER
SALES CO

Fig.2

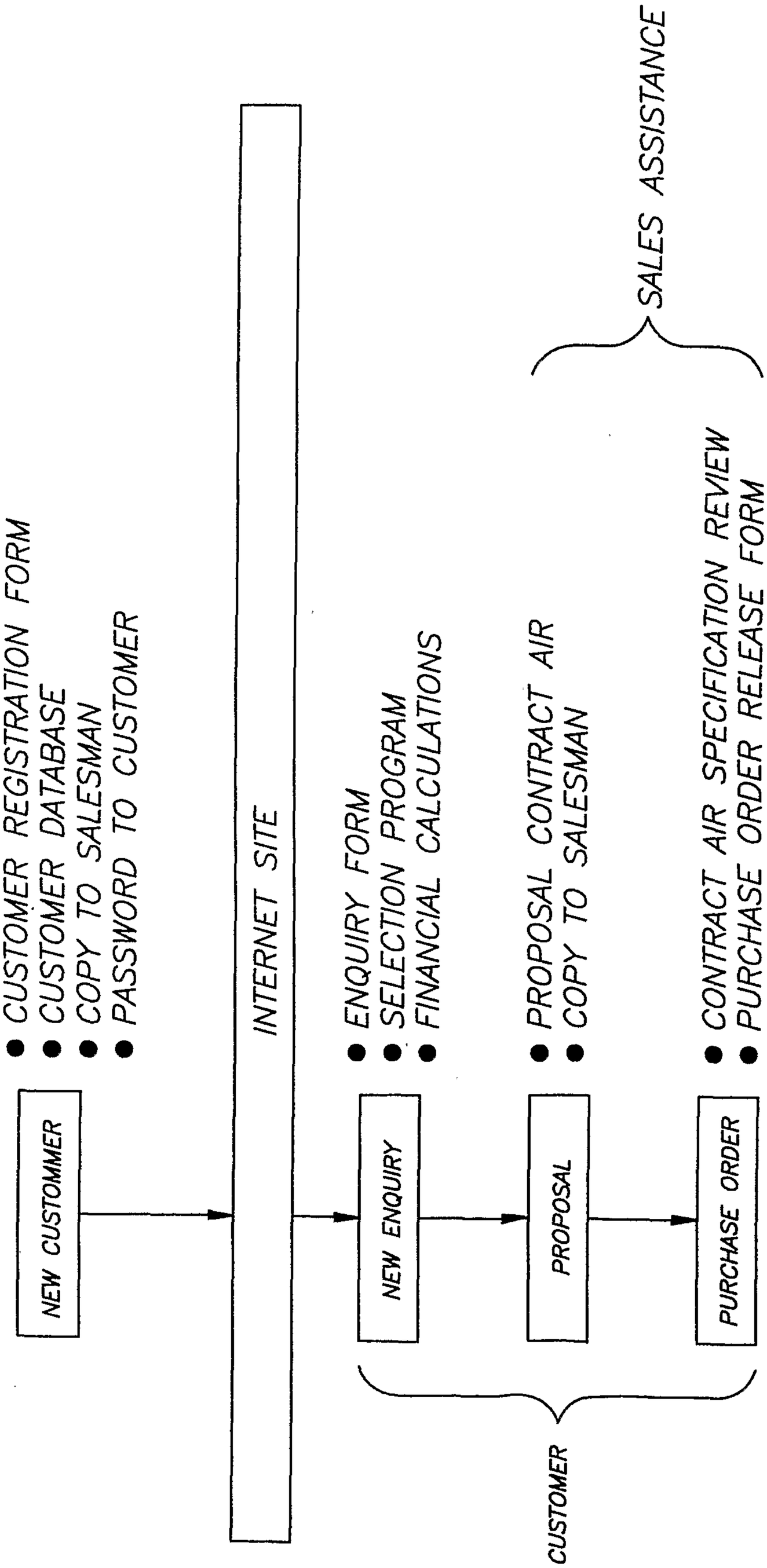

NEW CUSTOMMER
• CUSTOMER REGISTRATION FORM
• CUSTOMER DATABASE
• COPY TO SALESMAN
• PASSWORD TO CUSTOMER
INTERNET SITE
NEW ENQUIRY
• ENQUIRY FORM
• SELECTION PROGRAM
• FINANCIAL CALCULATIONS
PROPOSAL
• PROPOSAL CONTRACT AIR
• COPY TO SALESMAN
PURCHASE ORDER
• CONTRACT AIR SPECIFICATION REVIEW
• PURCHASE ORDER RELEASE FORM
SALES ASSISTANCE
NEW CUSTOMER

Fig.3

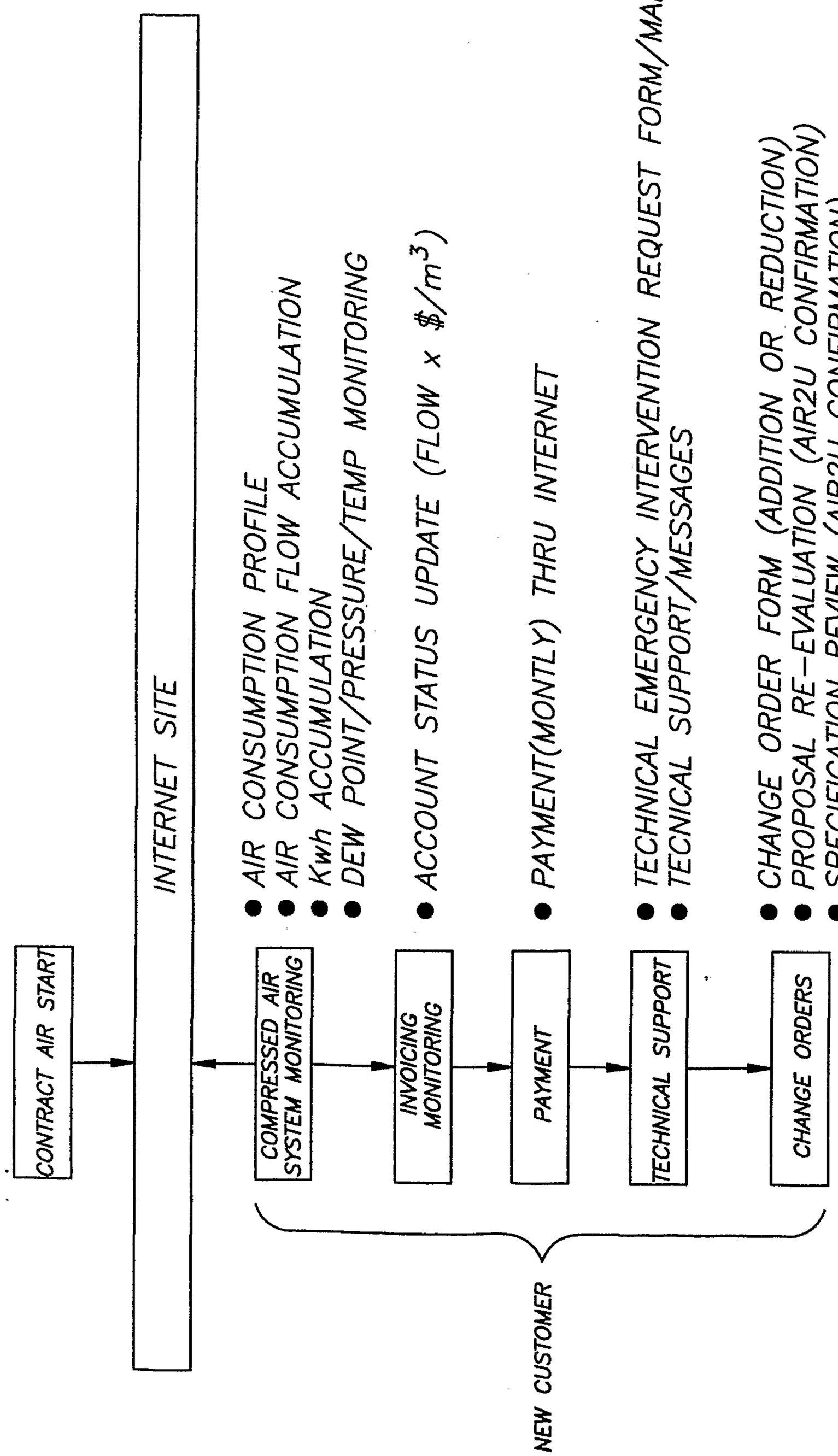

CONTRACT AIR START
INTERNET SITE
COMPRESSED AIR SYSTEM MONITORING
INVOICING MONITORING
PAYMENT
TECHNICAL SUPPORT
CHANGE ORDERS
• AIR CONSUMPTION PROFILE
• AIR CONSUMPTION FLOW ACCUMULATION
• Kwh ACCUMULATION
• DEW POINT/PRESSURE/TEMP MONITORING
• ACCOUNT STATUS UPDATE (FLOW x $/m3)
• PAYMENT(MONTLY) THRU INTERNET
• TECHNICAL EMERGENCY INTERVENTION REQUEST FORM/MAIL
• TECNICAL SUPPORT/MESSAGES
• CHANGE ORDER FORM (ADDITION OR REDUCTION)
• PROPOSAL RE-EVALUATION (AIR2U CONFIRMATION)
• SPECIFICATION REVIEW (AIR2U CONFIRMATION)
• CHANGE ORDER RELEASE
NEW CUSTOMER

Fig.4

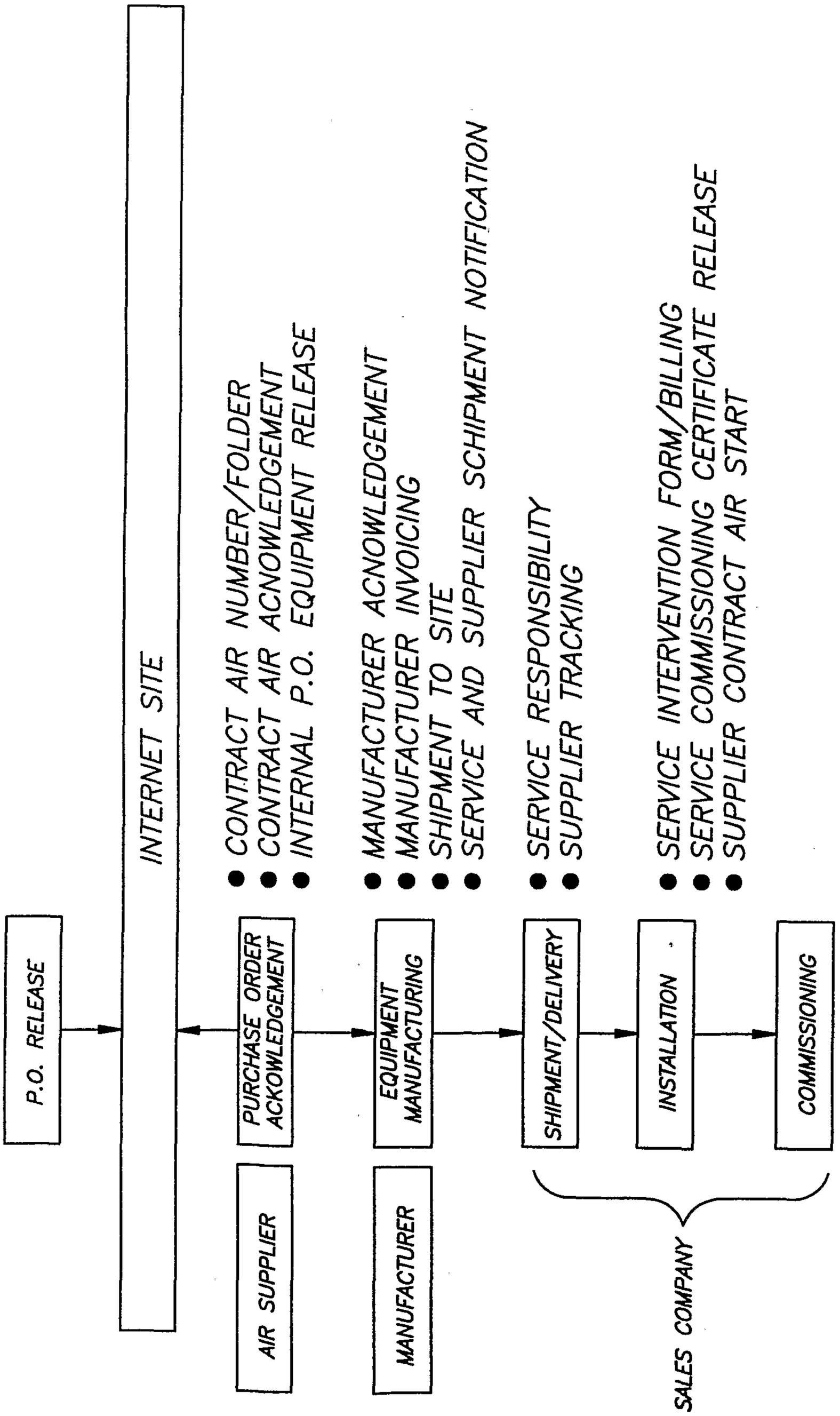
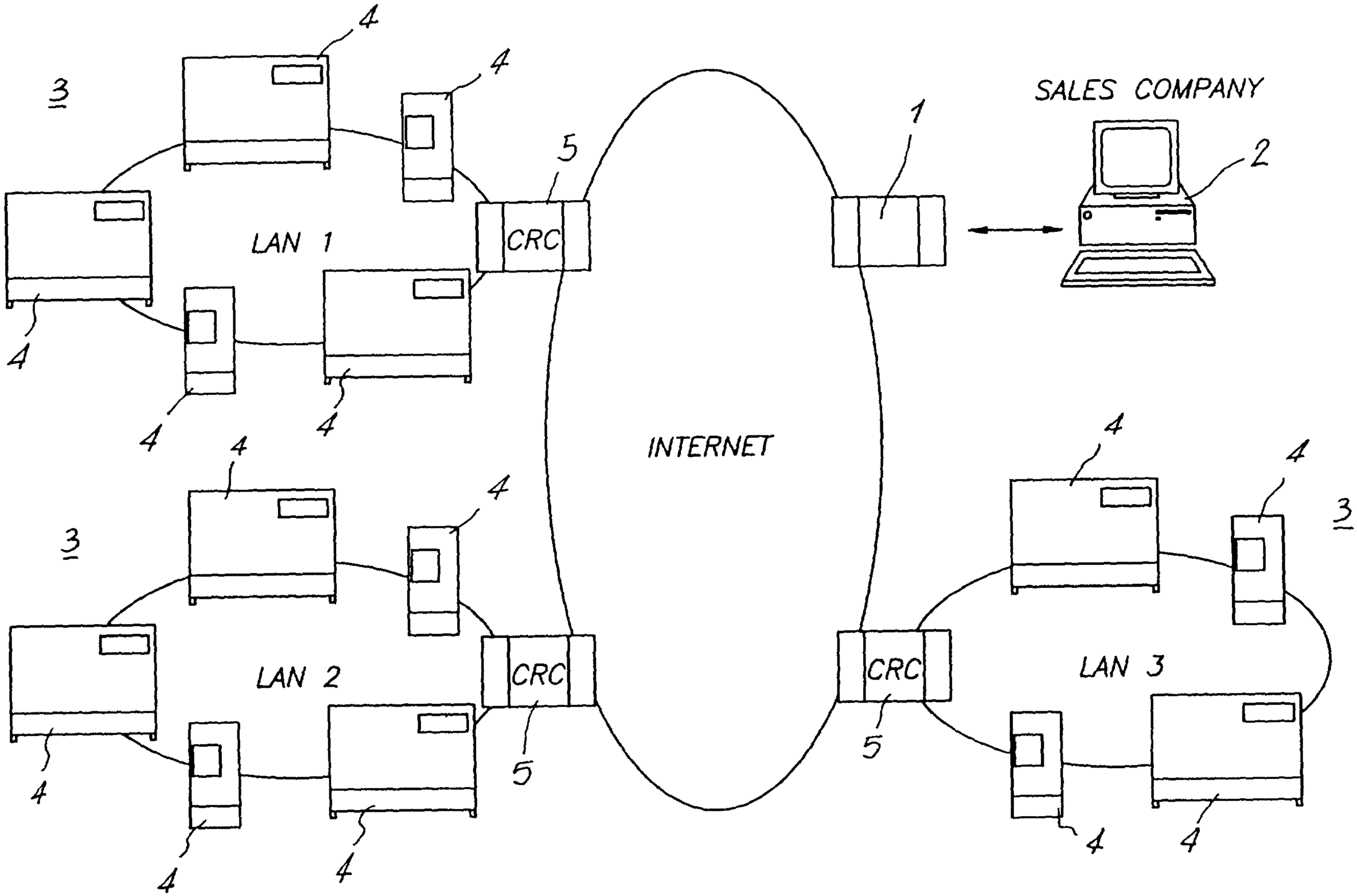

P.O. RELEASE
INTERNET SITE
PURCHASE ORDER ACKOWLEDGEMENT
EQUIPMENT MANUFACTURING
SHIPMENT/DELIVERY
INSTALLATION
COMMISSIONING
AIR SUPPLIER
MANUFACTURER
SALES COMPANY
• CONTRACT AIR NUMBER/FOLDER
• CONTRACT AIR ACNOWLEDGEMENT
• INTERNAL P.O. EQUIPMENT RELEASE
• MANUFACTURER ACNOWLEDGEMENT
• MANUFACTURER INVOICING
• SHIPMENT TO SITE
• SERVICE AND SUPPLIER SCHIPMENT NOTIFICATION
• SERVICE RESPONSIBILITY
• SUPPLIER TRACKING
• SERVICE INTERVENTION FORM/BILLING
• SERVICE COMMISSIONING CERTIFICATE RELEASE
• SUPPLIER CONTRACT AIR START

Fig.5


SALES COMPANY
1
2
3
4
5
CRC
LAN 1
INTERNET
LAN 2
LAN 3