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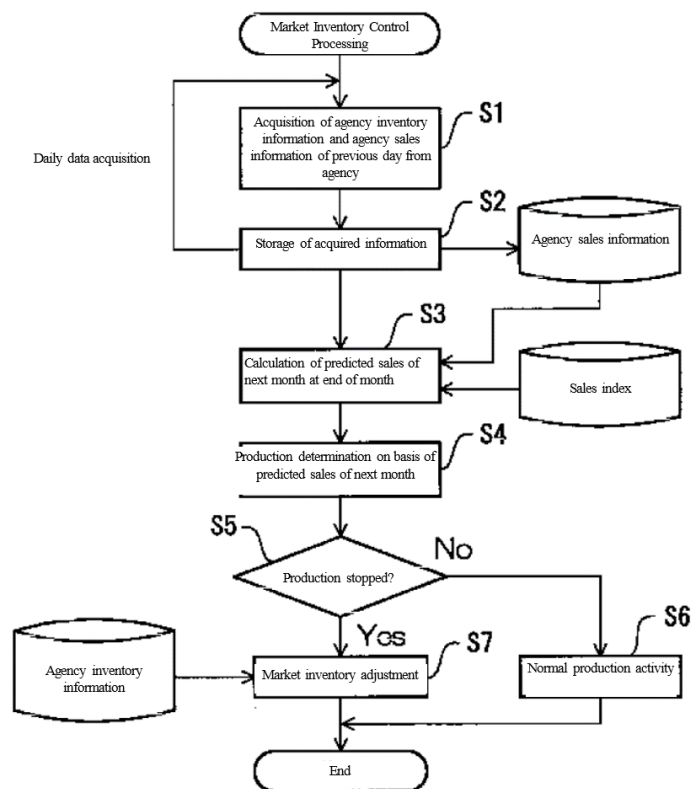
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(54) [Title of Invention] MARKET INVENTORY CONTROL SYSTEM AND MARKET INVENTORY CONTROL METHOD

(57) [Summary]

[Problem] To effectively utilize market inventory by collectively controlling the inventory control of each agency by a manufacturer.

[Resolution Means] A maker-side server device, the maker being a manufacturer, acquires product shipment information from an agency to a retail store and product inventory information of the agency from each agency (steps S1, S2), calculates a predicted sales volume for the next month based on the acquired product shipment information and product inventory information of each agency (step S3), and determines whether to produce or stop production on the basis of the calculated predicted sales volume for the next month (steps S4, S5) and the like. When, as a result, production is stopped, for the product whose sales on the market have fallen, inventory adjustment is performed on the market by instructing resale of the inventory product from the agency where sales have fallen to the agency that still sells, or in the case of the same agency, instructing transfer between warehouses (step S7).



## [Scope of Patent Claims]

[Claim 1] A market inventory control system in which an agency terminal installed at each agency and a manufacturer server device installed at the manufacturer are connected via a communication network and product inventory information of each agency is controlled by a manufacturer server device, wherein the manufacturer server device comprises: acquisition means that acquire product shipment information from the agency to a retail store and product inventory information of the agency from each agency terminal; analysis means that estimate sales volume of the product on the overall market and performs a sales analysis at each agency; and transfer instruction means that, as a result of the sales analysis, for the product whose sales on the market have fallen, instruct transfer of inventory product from the agency where sales have fallen to the agency that still sells, or in the case of the same agency, instruct transfer between warehouses.

[Claim 2] The market inventory control system according to claim 1, further comprising: an agency shipment information database and an agency inventory information database that respectively store product shipment information and product inventory information of each agency acquired from the acquisition means; and a sales index database that stores sales index data for each product; wherein the analysis means, based on the product shipment information and the sales index of each agency stored in the agency shipment information database and the sales index database, estimate the sales volume of the product on the overall market and performs a sales analysis at each agency.

[Claim 3] A method for controlling product inventory information of each agency at the manufacturer by a computer system, wherein, in the market inventory control method, the manufacturer comprises: a first stage of acquiring product shipment information from the agency to the retail store and product inventory information of the agency from each agency; a second stage of estimating sales volume of the product on the overall market and performs a sales analysis at each agency based on the acquired product shipment information of each agency and the sales index of the product; and a third stage of, as a result of the sales analysis, for the product whose sales on the market have fallen, instructing transfer of inventory product from the agency where sales have fallen to the agency that still sells, or in the case of the same agency, instructing transfer between warehouses.

[Claim 4] The market inventory control method according to claim 3, wherein, in the second stage, the estimation of sales volume and the sales analysis are performed by product category to which the product belongs.

[Claim 5] The market inventory control method according to claim 3 or 4, wherein, in the third stage, when transferring inventory product between agencies, a response is made by resale of the inventory product from the agency where sales have fallen to the agency that still sells, and only the distribution cost required for resale is borne by the manufacturer.

## [Detailed Description of the Invention]

[0001]

[Technical Field of the Invention] The present invention relates to a market inventory control system and a market

inventory control method that are applied to a goods distribution system that sells products from a maker, which is a manufacturer, to retail stores nationwide via a plurality of agencies.

[0002]

[Background Art] In a goods distribution system for selling products from a maker that is a manufacturer to retail stores nationwide via a plurality of agencies, conventionally, the maker that is the manufacturer controls product inventory by itself, and each agency controls product inventory by itself. Therefore, there are cases where a product A manufactured by the manufacturer and sold to each agency is almost out of stock at one agency while it is overstock at another agency. Similarly, there are cases where, because product inventory at retail stores is controlled by the retail store by itself, one retail store is almost out of stock while another retail store is overstock.

[0003] Thus, one method for resolving unnecessary product inventory at such retail stores is disclosed in JP H2000-99593.

[0004] The goods inventory control method disclosed in this JP 2000-99593 is configured so that, when controlling goods inventory between a plurality of stores (retail stores), goods inventory information relating to goods (product) for which inventory is desired to be reduced at each store is registered to a bulletin board region of goods inventory information provided in advance on the Internet, and stores other than the registered stores can view the bulletin board region of the goods inventory information and know the goods inventory information of other stores. As a result, it becomes possible to put up for public sale between stores goods likely to become dead stock between a plurality of stores, and the reduction of the dead stock in each store is promoted (this is referred to as prior art 1).

[0005]

[Problem to be Solved by the Invention] However, with the goods inventory control method of prior art 1, there has been a problem in that it requires labor of intentionally registering one's own store on the Internet and then publishing inventory information that is desired to be disposed of.

[0006] Moreover, because it is bulletin board information on the Internet, anyone can view it, and it also sends information to competitors, so there is a problem of lack of confidentiality. In order to solve this problem, it is conceivable to limit the retail stores that can view the information, but this also has problems such as the distribution channels being limited and the significance of registering on a bulletin board on the Internet being lessened.

[0007] Furthermore, the goods inventory control system of prior art 1 is in the flow of goods distribution from manufacturer to each agency and from each agency to each retail store (store) and is aimed only at distribution inventory control of retail stores and does not consider inventory control at agencies, and so is an insufficient control system in terms of effective use of inventory on the market (agency inventory and retail store inventory). Furthermore, in the current situation, because retail stores tend to hold as little inventory as possible and inventory tends to be held on the agency side instead, a greater effect can be obtained in terms of inventory control on the market by placing emphasis on inventory

control at the agency rather than on inventory control at the retail store.

[0008] The present invention is devised to solve such problems, and an object thereof is to provide a market inventory control method that effectively uses market inventory by collective control of inventory control of each agency by manufacturers.

[0009]

[Means for Solving Problem] To solve the above problems, in the market inventory control system of the present invention, wherein an agency terminal installed at each agency and a manufacturer server device installed at the manufacturer are connected via a communication network and product inventory information of each agency is controlled by a manufacturer server device, the manufacturer server device is provided with: acquisition means that acquire product shipment information from the agency to a retail store and product inventory information of the agency from each agency terminal; analysis means that estimate sales volume of the product on the overall market and performs a sales analysis at each agency; and transfer instruction means that, as a result of the sales analysis, for the product whose sales on the market have fallen, instruct transfer of inventory product from the agency where sales have fallen to the agency that still sells, or in the case of the same agency, instruct transfer between warehouses. Moreover, the above configuration is further provided with: an agency shipment information database and an agency inventory information database that respectively store product shipment information and product inventory information of each agency acquired from the acquisition means; and a sales index database that stores sales index data for each product; wherein the analysis means, based on the product shipment information and the sales index of each agency stored in the agency shipment information database and the sales index database, estimate the sales volume of the product on the overall market and performs a sales analysis at each agency.

[0010] According to the present invention having such characteristics, by connecting the manufacturer server device and the terminals of each agency by a direct network, the manufacturer server device can acquire product shipment information from the agency to the retail store and product inventory information of the agency from the agency terminals of each agency in real time. The manufacturer server device estimates the sales volume of the product on the overall market based on the acquired product shipment information of each agency and monthly sales index data of the product, and performs sales analyses at each agency. Moreover, the demand forecast of the overall market for the product and sales trends by region are analyzed. As a result, transfer (resale, etc.) of the inventory product from the agency where sales have fallen to the agency that still sells, or transfer between warehouses in the case of the same agency is instructed.

[0011] This causes product transfer from an agency having a large inventory to an agency likely to run out of inventory, and therefore, unnecessary inventory on the market (particularly at the agency) can be reduced.

[0012] In this manner, according to the market inventory control system of the present invention, the distribution from

the agency to the retail store can be understood on the maker side that is the manufacturer, and the inventory at the agency can also be understood. Moreover, since the product shipment information and the product inventory information of each agency is controlled on the maker side, confidentiality on the market can also be ensured. Furthermore, since the product shipment information and the product inventory information of each agency is controlled on the maker side, production adjustment can be performed on the basis of this information so as to avoid excessive production.

[0013] Moreover, the market inventory control method of the present invention is a method for controlling product inventory information of each agency at the manufacturer by a computer system, wherein the manufacturer is provided with: a first stage of acquiring product shipment information from the agency to the retail store and product inventory information of the agency from each agency; a second stage of estimating sales volume of the product on the overall market and performs a sales analysis at each agency; and a third stage of, as a result of the sales analysis, for the product whose sales on the market have fallen, instructing transfer of inventory product from the agency where sales have fallen to the agency that still sells, or in the case of the same agency, instructing transfer between warehouses.

[0014] According to the present invention having such characteristics, the maker that is the manufacturer, by connecting to each agency by a direct network, can acquire product shipment information from the agency to the retail store and product inventory information of the agency from each agency in real time. The maker estimates the sales volume of the product on the overall market based on the acquired product shipment information of each agency and sales index of the product, and performs sales analyses at each agency. Moreover, the demand forecast of the overall market for the product and sales trends by region are analyzed. As a result, resale of the inventory product from the agency where sales have fallen to the agency that still sells, or transfer between warehouses in the case of the same agency is instructed.

[0015] This causes product transfer from an agency having a large inventory to an agency likely to run out of inventory, and therefore, unnecessary inventory on the market (particularly at the agency) can be reduced.

[0016] In this manner, according to the market inventory control method of the present invention, the distribution from the agency to the retail store can be understood on the maker side that is the manufacturer, and the inventory at the agency can also be understood. Moreover, since the product shipment information and the product inventory information of each agency is controlled on the maker side, confidentiality on the market can also be ensured. Furthermore, since the product shipment information and the product inventory information of each agency is controlled on the maker side, production adjustment can be performed on the basis of this information so as to avoid excessive production.

[0017] In other words, according to the market inventory control method of the present invention, unnecessary inventory on the market can be effectively and successfully reduced by flexible responses such as production adjustment

on the maker side and resale of inventory products between agencies.

[0018] Moreover, according to the market inventory control method of the present invention, in the second stage, an estimation of sales volume and a sales analysis is performed by the product category to which the product belongs.

[0019] According to the present invention having such characteristics, for example, when calculating the monthly sales index for each individual product, consideration is not given to new products and products that have been discontinued (in particular, no calculation can be made for new products at all), but by performing calculation by product category such new products and discontinued products are also taken into consideration.

[0020] Moreover, according to the market inventory control method of the present information, in the third stage, when transferring inventory product between agencies, a response is made by resale of the inventory product from the agency where sales have fallen to the agency that still sells, and only the distribution cost required for resale is borne by the manufacturer.

[0021] According to the present invention having such characteristics, the maker side does not receive returned products, and only a return fee paid as a distribution fee is sufficient, and therefore costs are reduced, and wasteful production is not required. Moreover, inventory on the market can be controlled and effectively utilized in such a manner that at agencies having excess inventory, bad inventory can be accounted for, and at agencies having insufficient inventory, necessary amounts can be secured and sales can be continuously secured as well.

[0022]

[Embodiments of the Invention] Embodiments of the present invention will be described below with reference to the drawings.

[0023] FIG. 1 is an overall configuration diagram of a market inventory control system in which the market inventory control method of the present invention is applied.

[0024] This system is configured such that agency terminals 1a, 1b, 1c, ... installed at each agency having transactions and a server device 2 of the manufacturer (maker side) are connected via a network (public line) N. However, the agency terminals 1a, 1b, 1c, ... and the manufacturer server device (hereinafter referred to as the maker-side server device) 2 may be connected by a communication network such as the Internet.

[0025] Moreover, the maker-side server device 2 is configured be connected to the network N via an agency communication control computer 21, and in the device 2, connected to the agency communication control computer 21, a market inventory control computer 22, and a database server 23 by a LAN 24 or the like. Moreover, the market inventory control computer 22 is provided with: acquisition means of acquiring product shipment information from the agency to the retail store and product inventory information of the agency from each agency terminal 1a, 1b, 1c, ...; analysis means for estimating sales volume of the product on the overall market and performs a sales analysis at each agency; and transfer

instruction means for, as a result of the sales analysis, for the product whose sales on the market have fallen, instructing transfer of inventory product from the agency where sales have fallen to the agency that still sells, or in the case of the same agency, instructing transfer between warehouses.

[0026] FIG. 2 illustrates an example of various databases controlled by the database server 23. Three kinds of databases controlled by the database server 23 are prepared, that is, an agency inventory information database 23a, an agency sales (shipping) information database 23b, and a sales index database 23c. Data of an agency code, a product number, and an inventory count are saved in the agency inventory information database 23a. Moreover, data of an agency code, an order source retail store code, a product number, the number of orders, an order date, and a shipping date are saved in the agency sales information database 23b. Moreover, monthly sales indexes of the previous year and current year are saved in the sales index database 23c. In the database server 23, these data are updated daily so that the data can be stored and analyzed. Moreover, in the present embodiment, these data can be analyzed by general purpose spreadsheet software.

[0027] Moreover, with regard to the estimation of the sales volume of the entire market, the sales volume of the product for the next month is estimated from the most recent sales trend (here, three months) and the monthly sales index on the basis of information collected from each agency (product shipment information and product inventory information).

[0028] Here, a specific example of a process for estimating sales volume will be described.

[0029] A certain product was shipped (sold) from all agencies to all retail stores: 800 in July 2000 and 500 in August 2000.

[0030] Moreover, the monthly sales index is calculated as follows. That is, when the sales weight of all products included in the category to which the product belongs in the previous fiscal year (for example, the categories of bathroom supplies, kitchen supplies, buckets, cleaning supplies, ...)—for example, if the product belongs to the category of cleaning supplies, the sales weight of all products belonging to cleaning supplies from the agency to the retail store in the previous fiscal year—is as shown in Table 1 below, the monthly average sales weight is then 1,633 kg, and the value obtained by dividing the monthly results by the monthly average sales weight (average value) is the monthly sales index.

[0031]

[Table 1]

|              | Sales Volume |
|--------------|--------------|
| April 1999   | 2000 kg      |
| May          | 1200 kg      |
| June         | 1000 kg      |
| July         | 1100 kg      |
| August       | 1300 kg      |
| September    | 2500 kg      |
| October      | 1400 kg      |
| November     | 1700 kg      |
| December     | 2400 kg      |
| January 2000 | 1300 kg      |
| February     | 1100 kg      |
| March        | 2600 kg      |

[0032] In other words, the monthly sales index for the category of cleaning supplies is as shown in Table 2 below.

[0033]

[Table 2]

|              | Monthly Sales Index |
|--------------|---------------------|
| April 1999   | 1.22                |
| May          | 0.73                |
| June         | 0.61                |
| July         | 0.67                |
| August       | 0.80                |
| September    | 1.53                |
| October      | 0.86                |
| November     | 1.04                |
| December     | 1.47                |
| January 2000 | 0.80                |
| February     | 0.67                |
| March        | 1.59                |

$$\frac{\{([August\ 2000\ Sales\ Volume] \times [September\ Sales\ Index]) \div [July\ 2000\ Sales\ Volume] \times [August\ Sales\ Index]\} \times [August\ 2000\ Sales\ Volume]}{\dots(1)}$$

That is, in this example, this is  $(500 \times 1.53) \div (800 \times 0.8) \times 500 \approx 598$ , and the predicted sales volume of the product in September 2000 is 598.

[0037] In this example, although it is increasing, if this predicted sales volume is on a decreasing trend and is a sales volume that does not match the production cost, production will be stopped and the maker side will determine discontinuation. FIG. 3 illustrates the flow of such a process.

[0038] A description will be given again following the flow chart illustrated in FIG. 3.

[0039] A maker-side server device 2 acquires, on a daily basis, product shipping (sales) information of the day before from the agency to the retail store and product inventory information of the day before of the agency from each agency terminal 1a, 1b, 1c, ... (step S1). The acquired product sales information is stored in the agency sales information database 23b of the database server 23, and the product inventory information is stored in the agency inventory information database 23a of the database server 23 (step S2). In this manner, daily information is stored and, at the end of the month, the maker-side server device 2 calculates the predicted sales volume of the next month (step S3). This calculation is

[0034] When this monthly sales index is set for each individual product, calculation is performed on a category basis because a problem occurs in which new products and products that have been discontinued are not considered. For example, there are various products among kitchen garbage cans with pedals (name of good: "pedal bin") that differ by capacity, color, dimension (shape), and the like, but in this case, they are calculated as a single category (pedal bins). Supposing that the monthly sales index were calculated for each individual product, the computational complexity would be extensive because the types of the product itself are also extensive (thousands of types, or the like). Moreover, new products do not have sales results for the previous month, and thus there is a problem in that inventory control cannot be performed until sales results have increased to a certain extent, but by calculating by product category, computation complexity can be reduced, and new products and discontinued products can be controlled.

[0035] Based on this monthly sales index and the sales volume described above, how much the product will be sold in September 2000 is calculated by the following Formula (1).

[0036]

as already described above. Thereafter, on the basis of the calculated predicted sales volume for the next month, a determination is made as to whether to perform or stop production of the product (steps S4, S5). The determination criterion at this time is determined by whether the predicted sales volume is on a decreasing trend and the sales volume matches the production cost. As a result, if even one of these conditions is resolved (if No is determined at step S5), the operation proceeds to step S6, and normal production activity is performed as before.

[0040] Meanwhile, if all of these conditions are met (if Yes is determined at step S5), the operation proceeds to step S7, production of this product is stopped, and inventory adjustment is performed on the market. The inventory adjustment of this step S7 will be described below.

[0041] FIG. 4 illustrates a form example for performing an inventory analysis of an agency.

[0042] In the previous steps S4 and S5, for example, production of a product having a product number "AAAAAAA" is stopped. The form illustrated in FIG. 4 shows the current inventory count, backlog of orders, and shipment count for the last month at agencies "aaaa to qqqq"

that handle this product number “AAAAAAA.”

[0043] The maker-side server device 2 checks the sales of each agency by referring to the contents of this form. In the example illustrated in FIG. 4, at the agency “ffff” the shipping volume for the last month is 250, and the backlog of orders is 250, while the remaining inventory is more than enough at 2,500. Since the production of product “AAAAAAA” has been stopped and a new substitute product is already scheduled to be introduced to the market, the product “AAAAAAA” will not be sold in the future. In this case, conventionally, products that are no longer necessary at the agency will be returned from the commercial practice of daily necessities, and the maker must pay the agency for the price of the return. On the other hand, at the agency “bbbb,” the inventory count is 336, and the backlog of orders remaining is 2,390, and movement of products is still active, and products are presently still out of stock.

[0044] This type of phenomenon is not uncommon in wide-area chain stores and the like because the time for replacement of new and old products on shelves is different. Moreover, even when a new order is placed from the agency to the maker, it will not be available in the future because production has already been stopped. It is also possible to force the maker to make the product, but because the maker has already stopped production of the product, preparation is necessary to begin production again, and thus the man-hours, labor, and costs are high.

[0045] Then, the maker-side server device 2 instructs (proposes) the resale of the product from the agency “ffff” to the agency “bbbb.” Moreover, with regard to the transfer of the product at the same agency, a detailed form such as that illustrated in FIG. 4 (however, in this case, a form of an agency business office unit) is presented to the agency side, and the transfer of the product is prompted.

[0046] These may be configured so as to send instructions for product transfer from the maker-side server device 2 to the agency-side terminals 1a, 1b, 1c, ..., or may be configured so that a sales representative of the maker directly presents the form to prompt transfer of the product. In this case, the agency side simply transfers the product within the normal routine scope of work to be a transfer between warehouses within the company. With regard to resale between different companies, the inventory information of the agency that is collected on a daily basis and the inventory information at each agency such as that illustrated in FIG. 4 are presented, and it is determined whether resale is necessary.

[0047] Regarding distribution, the agency “bbbb” places an order with the agency “ffff”, and the agency “ffff” arranges a vehicle dispatch in the same manner as an order from a normal retail store and sends the product “AAAAAAA” to the agency “bbbb.”

[0048] In this manner, the sale and purchase of the product itself is carried out between the agency “ffff” and the agency “bbbb,” but in this case, the distribution cost will be extra for the agency “ffff.” Therefore, for this portion, for example, as a return fee, the maker side pays the required distribution cost to the agency “ffff.”

[0049] Conventionally, products that have become unnecessary at an agency are accepted as returns on the maker side, and returned products were originally collected at a

wholesale price when sold wholesale from the maker to the agency. However, the following advantages occur on the maker side and the agency side by adopting the market inventory control method of the present invention.

[0050] In other words, the maker side does not receive returned products, and only a return fee is sufficient, and therefore costs are reduced, and wasteful production may be avoided. Moreover, on the agency “ffff” side, bad inventory can be accounted for. Inventory on the market can be controlled and effectively utilized in such a manner that at the agency “bbbb,” necessary amounts can be secured and sales can be continuously secured as well. Moreover, because this type of information is periodically updated (daily), the inventory on the overall market can be always known, and it is possible to rapidly respond to this type of situation (excess inventory and inventory shortage on the agency side).

[0051]

[Effect of Invention] According to the market inventory control system and market inventory control method of the present invention, it is possible to balance market demand and supply for a product whose production has stopped as a result of a sales analysis at an agency by means of sale and purchase between agencies of the product, transfer between warehouses within the same agency, and the like. Thus, the manufacturer may avoid wasteful production. Moreover, inventory that is unevenly distributed in the market does not need to be accounted in the form of returns. Furthermore, since wasteful production is avoided, the production line can be effectively utilized for production of the next new product and existing products. Moreover, agencies can reliably supply products to retail stores by securing the necessary product. Moreover, for agencies carrying bad inventory, the bad inventory can be effectively accounted for.

[0052] Moreover, according to the market inventory control method of the present invention, because estimation of sales volume and sales analysis is performed by the product category to which the product belongs, for example, when calculating the monthly sales index for each individual product, consideration is not given to new products and products that have been discontinued (in particular, no calculation can be made for new products at all), but by performing calculation by product category, such new products and discontinued products can be considered and analyzed. Moreover, if the monthly sales index were to be calculated for each individual product, the computational complexity would be extensive because the types of the product itself are also extensive (thousands of types, or the like), but by calculating by product category, computational complexity itself can be reduced. Furthermore, new products do not have sales results for the previous month, and thus there is a problem in that inventory control cannot be performed until sales results have increased to a certain extent, but by calculating by product category, such problems can be resolved.

[0053] Moreover, according to the market inventory control method of the present information, when transferring inventory product between agencies, a response is made by resale of the inventory product from the agency where sales have fallen to the agency that still sells, and only the distribution cost required for resale is borne by the

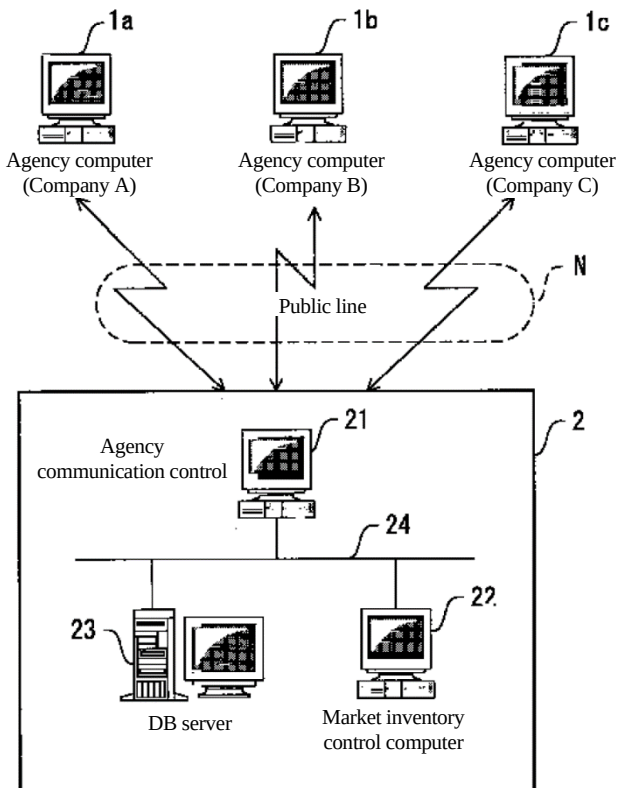
manufacturer, and therefore, the manufacturer does not receive returned products, and only a return fee paid as a distribution fee is sufficient, and therefore costs are reduced, and wasteful production may be avoided. Moreover, inventory on the market can be controlled and effectively utilized in such a manner that at agencies having excess inventory, bad inventory can be accounted for, and at agencies having insufficient inventory, necessary amounts can be secured and sales can be continuously secured as well.

[Brief Description of Drawings]

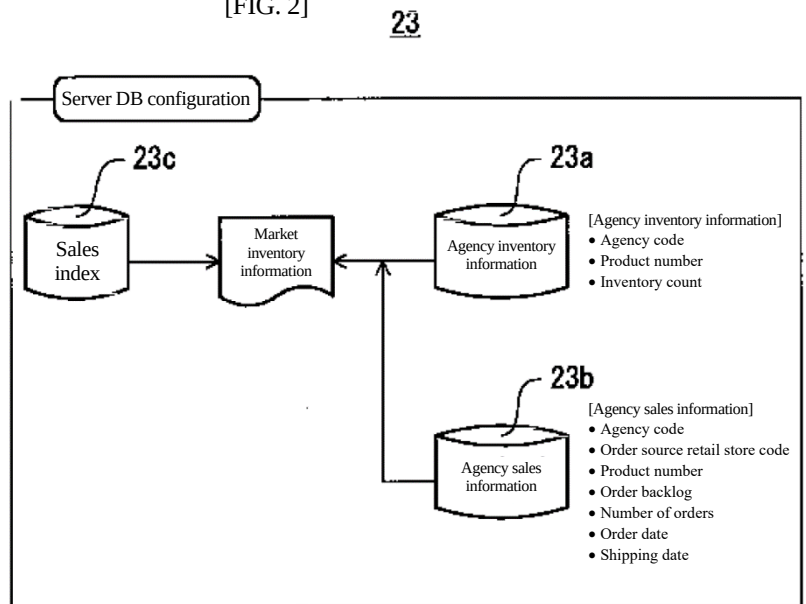
[FIG. 1] An overall configuration diagram of a market inventory control system for implementing the market inventory control method of the present invention.

[FIG. 2] A explanatory diagram illustrating an example of various databases controlled by the database server 23.

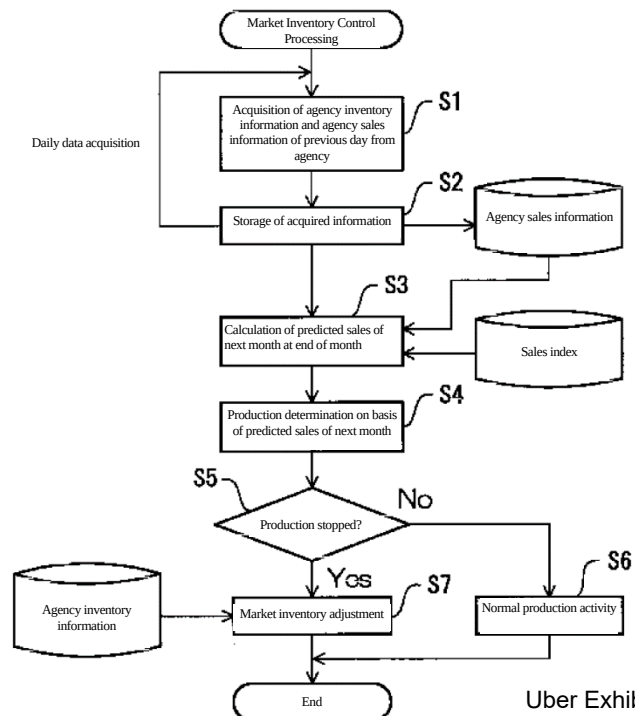
[FIG. 1]



[FIG. 2]



[FIG. 3]



[FIG. 4]

| Good Class. | Product No. | Product Name          | Agency Name | Inventory Count | Order Backlog | Shipping Volume | Inventory Date |
|-------------|-------------|-----------------------|-------------|-----------------|---------------|-----------------|----------------|
| KC0742      | AAAAAA      | Sorting pedal bin #40 | aaaa        | 100             | 0             | 3               | 8/22/2000      |
| KC0742      | AAAAAA      | Sorting pedal bin #40 | bbbb        | 336             | 2390          | 2351            | 8/21/2000      |
| KC0742      | AAAAAA      | Sorting pedal bin #40 | cccc        | 560             | 20            | 15              | 8/21/2000      |
| KC0742      | AAAAAA      | Sorting pedal bin #40 | dddd        | 365             | 1200          | 1350            | 8/21/2000      |
| KC0742      | AAAAAA      | Sorting pedal bin #40 | eeee        | 10              | 10            | 10              | 8/21/2000      |
| KC0742      | AAAAAA      | Sorting pedal bin #40 | ffff        | 2500            | 250           | 250             | 8/22/2000      |
| KC0742      | AAAAAA      | Sorting pedal bin #40 | gggg        | 0               | 0             | 0               | 8/22/2000      |
| KC0742      | AAAAAA      | Sorting pedal bin #40 | hhhh        | 0               | 0             | 0               | 8/22/2000      |
| KC0742      | AAAAAA      | Sorting pedal bin #40 | iiii        | 0               | 0             | 0               | 8/22/2000      |
| KC0742      | AAAAAA      | Sorting pedal bin #40 | jjjj        | 0               | 0             | 0               | 8/22/2000      |
| KC0742      | AAAAAA      | Sorting pedal bin #40 | kkkk        | 0               | 0             | 0               | 8/22/2000      |
| KC0742      | AAAAAA      | Sorting pedal bin #40 | llll        | 9               | 5             | 10              | 8/22/2000      |
| KC0742      | AAAAAA      | Sorting pedal bin #40 | mmmm        | 45              | 5             | 5               | 8/22/2000      |
| KC0742      | AAAAAA      | Sorting pedal bin #40 | nnnn        | 0               | 0             | 0               | 8/22/2000      |
| KC0742      | AAAAAA      | Sorting pedal bin #40 | oooo        | 9               | 3             | 20              | 8/22/2000      |
| KC0742      | AAAAAA      | Sorting pedal bin #40 | pppp        | 5               | 0             | 0               | 8/22/2000      |
| KC0742      | AAAAAA      | Sorting pedal bin #40 | qqqq        | 96              | 20            | 85              | 8/22/2000      |



March 22, 2023

**Certification**

**Welocalize Translations**

**TRANSLATOR'S DECLARATION:**

I, David Takata, hereby declare:

1. I am a translator for Welocalize Translations, a professional translation company incorporated globally with its principal office located in New York.
2. I am competent to translate between the Japanese and English languages.
3. At the request of Groombridge, Wu, Baughman & Stone LLP, I translated JP2002104622A\_Original from Japanese to English.
4. To the best of my knowledge and belief, the attached English language document is a true, complete, and correct translation of JP2002104622A\_Original.
5. I make this declaration of my own personal knowledge. If called to testify as to the truth of the matters stated herein, I could and would testify competently.
6. I declare under penalty of perjury that the foregoing is true and correct.
7. Declarant has been warned that willful false statements and the like are punishable by fine or imprisonment.

Executed this 22<sup>nd</sup> day of March, 2023, at Osaka, Japan..

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