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(54) STORAGE MODULE FOR CONSUMABLE PRODUCTS, STORAGE MODULAR SYSTEM INCLUDING SAID STORAGE MODULE AND SELLING SPACE INCLUDING SAID STORAGE MODULAR SYSTEM

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MODULE DE STOCKAGE DE PRODUITS CONSOMMABLES, SYSTÈME DE STOCKAGE MODULAIRE COMPRENANT LEDIT MODULE DE STOCKAGE ET ESPACE DE VENTE COMPRENANT LEDIT SYSTÈME DE STOCKAGE MODULAIRE

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Description

[0001] The present invention concerns a storage module for use in a shop of consumable products, for example a pharmacy, a video shop, an ironmonger's and the like, as well as a sales point for parapharmacy products or other products, of the type located in a shopping centre or in a supermarket.

[0002] The invention also concerns a modular system comprising said storage modules for containing consumable products in the above mentioned shops and points of sale, as well as a selling space comprising such a modular system.

[0003] As is known, the shops of consumable products generally comprise a selling position, for example a sales counter, and display structures provided with shelves and/or display stands for the products, arranged behind the counter and along the walls of the shop.

[0004] This arrangement obliges the personnel to move frequently inside the shop, in order to take from the shelves the products requested by the customers and then return to the counter to hand them out.

[0005] The above mentioned movements pose the drawback that they take up time that could very well be dedicated to interaction and communication between the personnel and the customer or to other equally important activities. Furthermore, said movements pose the further drawback that they are tiring for the shop personnel.

[0006] Very similar drawbacks occur in the sales points, particularly common in supermarkets, in which the selling space is delimited along its perimeter by the display structures.

[0007] The drawbacks mentioned above are particularly important in pharmacies, parapharmacy product sales points and in any other shop selling a wide variety of different products.

[0008] As far as pharmacies are concerned, in particular, it often occurs that the shelves and/or the display stands present in the room are not sufficient to contain all the products required.

[0009] In order to partially overcome the drawback described above, only a limited number of packages of each product is displayed, with the further inconvenience that constant real-time monitoring of the actual sales is necessary in order to be able to guarantee that the products are always available for sale.

[0010] Usually, the refilling of the shelves/display stands with new packages of the sold products is carried out by the pharmacist or by an assistant, who take them from the depot adjacent to the selling space.

[0011] This refilling operation poses the drawback that it involves an increase in the shop management costs, since it takes up much time to the pharmacist or requires the constant presence of an assistant.

[0012] Furthermore, this involves the drawback that the depot requires an apposite additional room, which also in this case entails considerable management costs.

[0013] In the attempt to overcome the drawbacks described above, automatic storage systems have been devised and are known, in particular for pharmacies, which externally have the appearance of close cabinets and comprise, in their inside space, a set of shelves that normally cannot be accessed from the outside and are used for storing the products.

[0014] The storage system is also provided with an automatic collection system that takes the products required by the pharmacist from the shelves via a computerized interface, and deposits them on a delivery point that can be accessed from the outside.

[0015] The storage systems of the type described above offer the advantage that they reduce the time necessary for collecting the products.

[0016] However, they pose the drawback that they occupy considerable space and therefore require an apposite dedicated room.

[0017] Furthermore, these storage systems have fixed shapes and dimensions and therefore are not always compatible with the reduced spaces available in the shops.

[0018] A further drawback is represented by the fact that the automated storage systems of known type can be used only by the pharmacist, consequently causing long waiting times for the customers.

[0019] In addition to the above, it frequently occurs that the pharmacies of known type, even if provided with an apposite room used as a depot, offer a total space that is not sufficient to contain all the pharmaceutical products and, therefore, some products must be ordered from wholesalers.

[0020] In these cases, the drawback arises that it is necessary to postpone the delivery of the product for some days and, therefore, let the customer wait, thus leading him/her to buy the product from other, better stocked pharmacies. Said drawbacks are present, to an even greater extent, in the sales points dispensing parapharmacy products generally located inside structures intended for the sale of a variety of products, such as supermarkets, hypermarkets, shopping centres and the like.

[0021] In these cases, in fact, it rarely occurs that near the sales point there is a space available for stocking products.

[0022] Furthermore, the non-availability of a pharmaceutical product may lead the customer to go to another supermarket, which involves missed sales of other products, too.

[0023] Obviously, most of the drawbacks described above are not exclusive drawbacks of pharmacies and of parapharmacy product sales points, but can be found in any shop or sales point where there is a wide variety of products on display.

[0024] Documents US 4618031 and DE 2202139 disclose storage systems comprising a display structure, a set of storage shelves arranged behind the display structure, and a mobile lift truck arranged in between, allowing to replenishing the display structure with the products

collected directly from the storage shelves.

[0025] The object of the present invention is to overcome all the above mentioned drawbacks that are typical of the known art.

[0026] In particular, it is the object of the present invention to carry out a storage system capable of exploiting the space available in a shop or a point of sale more effectively than the storage systems of known type.

[0027] It is also the object of the invention to eliminate the need to create an apposite space to be used as a depot in the sales point.

[0028] It is also the object of the invention to reduce the efforts required of the personnel and the time necessary for collecting the products stored in the storage system.

[0029] It is also the object of the invention to allow customers to collect a stored product directly, with no need to wait for the intervention of the sales personnel.

[0030] It is a further object of the invention to carry out a storage system suitable for selling spaces having any shape and configuration.

[0031] The objects described above are achieved by a storage module carried out according to claim 1 and by the corresponding modular system carried out according to claim 4.

[0032] The same objects are achieved also by a selling space carried out according to claim 12.

[0033] Other details of the invention are described in the dependent claims.

[0034] greater Advantageously, the greater storage volume obtained by the invention makes it possible to ensure a greater availability of products in the selling space compared to the known art, and this certainly ensures greater customer satisfaction.

[0035] Still advantageously, the adaptability of the storage system of the invention to any shop or sales point in any case guarantees the maximum possible exploitation of the available space.

[0036] Furthermore, to advantage, since no apposite room to be used as a depot is required, the corresponding management costs are avoided.

[0037] Still advantageously, the possibility for the customers to collect a product directly reduces waiting times.

[0038] The said objects and advantages, and others which are better highlighted below, will be illustrated in detail in the description of a preferred embodiment of the invention which is provided by way of non-limiting example with reference to the attached drawings, wherein:

- Figure 1 shows a plan view of a shop carried out according to the invention;
- Figure 2 shows an axonometric view of the storage system that is the subject of the invention;
- Figure 3 shows an axonometric view of a storage module carried out according to the invention;
- Figures 4a and 4b show an axonometric view of a construction variant of the module of the invention, respectively in different operating configurations; .
- Figure 5 shows an axonometric view of a further construction variant of the module that is the subject of the invention;
- Figures 6a and 6b show an axonometric view of a further construction variant of the module of the invention, in different operating configurations.

[0039] The selling space that is the subject of the invention, illustrated in Figure 1 and indicated as a whole by 1, is delimited more or less partially by a display structure **2** provided with shelves and/or display stands **3,** visible in Figure 2, on which the most requested products are preferably displayed.

[0040] Said shelves/display stands **3** can be accessed from the inside of the selling space **1** by the seller and/or the customers, who can thus collect the above mentioned displayed products.

[0041] Preferably, the display structure **2** is as high as possible, compatibly with the need to allow the users to reach even its top shelves **3.**

[0042] The selling space **1** comprises a shelving system **4** for storing further products, arranged at the back of the display structure **2** and substantially having the same configuration, as shown in Figure 1.

[0043] The products stored in the shelving system **4,** which are hidden by the selling space **1,** can be collected through the delivery points **5a, 5b** accessible to the users and fed by a handling unit **6** that transfers the products from the shelving system **4** to the delivery points **5a, 5b.**

[0044] The handling unit **6** is connected to a logic control unit that receives the requests for products via control terminals that are accessible to the seller and not represented herein.

[0045] By means of the above mentioned control terminals, the seller can order the handling unit **6** to deliver a certain product and can also check its availability in real time.

[0046] The connections between the handling unit **6,** the logic control unit and the control terminals are preferably of the wireless type, which advantageously allows an extremely flexible choice in the arrangement of the above mentioned components in the selling space.

[0047] It is evident, however, that the connections can be carried out even by means of electric cables or in any other suitable manner.

[0048] It is clear that the handling unit **6** can also be used to transfer the products positioned in the delivery points **5a, 5b** to the shelving system **4,** in order to allow the stock to be replenished.

[0049] This transfer can be carried out automatically, via a product identification system based on the bar codes or on radio-frequency identification technologies, commonly known as "RFID", or on other known techniques.

[0050] The identification of the products as described above will allow the handling unit to collect the products positioned by the seller on the delivery points **5a, 5b** and transfer them automatically to the most suitable cell **15**

in the shelving system **4.**

[0051] It can be understood that the shelving system **4** arranged as described above makes it possible to obtain a large vertical surface that potentially can develop along the entire perimeter of the selling space **1.**

[0052] Therefore, it can be understood that the resulting stocking volume is greater than that ensured by a storage system of known type and furthermore occupies less space, as it is distributed on the perimeter of the room. Advantageously, the larger stocking volume ensures the availability of a higher number of products, thus increasing customer satisfaction.

[0053] Furthermore, as the storage system that is the subject of the invention is arranged along the perimeter of the selling space **1,** it does not require a specifically dedicated room and thus achieves another object of the invention. The selling space **1** described above is particularly suited to be carried out in a large facility, like for example a supermarket.

[0054] Obviously, in construction variants of the invention, the selling space **1** can also be created inside a shop **9** like, for example, a pharmacy.

[0055] In this case, according to the invention, the display structure **2** is arranged along the perimeter walls **10** of the shop **9,** spaced from them in order to define an interspace **11** in which the shelving system **4** and the handling unit **6** are arranged.

[0056] Preferably, as shown in Figure 1, the selling space **1** also comprises sales counters **B1, B2** and delivery points **5a** arranged behind the counters **B1, B2** themselves.

[0057] Since the delivery points **5a** are arranged as described, the seller can collect the required products more quickly and comfortably than usually allowed by the storage systems of known type, and this achieves the object of reducing the product collection time and the stress to which the seller is subjected for the whole working day.

[0058] Furthermore, the delivery points **5a** are preferably aligned with the display structure **2** so that, to advantage, they are easily accessible and do not occupy further space in the room.

[0059] It is evident that the delivery points **5a** can be arranged in positions different from those described and illustrated herein, provided that they can be accessed both by the handling unit and by a user.

[0060] As can be observed in greater detail in Figure 2, the shelving system **4** is spaced from the display structure **2** in order to identify a separation interspace **7** for the movement of a collection unit **18** belonging to the above mentioned handling unit **6.**

[0061] More in detail and as can be observed in Figures from 3 to 5, the shelving system, here respectively indicated by **4a, 4b** and **4c,** comprises shelves **24** equipped with partitioning elements **14** that delimit storage cells **15** for the products, said cells being in communication with the above mentioned separation interspace **7.**

[0062] Preferably, the partitioning elements **14** slide on the shelving system **4** to allow the size of the cells **15** to be modified according to the dimensions of the containers stored on the shelves **24** and they are moved automatically by means of the same collection unit **18.**

[0063] According to a construction variant of the invention, visible in Figures 6a and 6b, the shelving system, indicated here by **4d,** comprises drawers **25** that can be pulled out in the separation interspace **7,** preferably via drive means associated with the shelving system and not represented herein.

[0064] According to a construction variant of the invention, the above mentioned drawers **25** have the shape of withdrawable trays **26,** schematically illustrated in Figures 6a and 6b, on which the products are arranged.

[0065] Preferably, the shelving system **4d** comprises more than one withdrawable tray **26** at different heights, in order to advantageously allow the storage of packages with different sizes.

[0066] Obviously, the shelving system **4** may include a combination of trays **24** and drawers **25,** according to the desire of the seller and the type of product stocked.

[0067] As regards the collection unit **18,** shown in Figure 2, this preferably comprises a carriage **19,** slidingly associated with guide means **13** that develop along the whole shelving system **4** and preferably comprise a raised horizontal rail **16.** The carriage **19** supports a vertical mast **20** slidingly associated with a shuttle **21** provided with means **21 a** for collecting the stocked products. Obviously, the movements of the carriage **19** along the guide means **13** and of the shuttle **21** along the vertical mast **20** make it possible to arrange the collection means **21a** in any point of the shelving system **4,** according to the position of the product to be collected.

[0068] The collection means **21 a** preferably comprise an arm **21 b** that can be extended towards the inside of the shelving system **4,** provided with suckers **21 c** facing downwards in order to grab the product from above. Advantageously, grabbing the products from above means also being able to collect even products arranged behind other products and, therefore, ensures a more flexible arrangement of the products on each cell **15** or drawer **25.** According to another embodiment of the invention, not represented herein, two shelving systems are provided, opposite each other and spaced by a separation interspace inside which said handling unit **6** moves.

[0069] Obviously, further embodiments of the invention may comprise more than two parallel shelving systems **4,** provided that they are all served by at least one handling unit **6.**

[0070] Preferably, the handling unit **6** also comprises conveyor belts **22, 23** that convey the products collected by the collection unit **18** towards the delivery points **5a, 5b.**

[0071] Preferably, the conveyor belts are two, so that several products can be transported at the same time.

[0072] In particular, a first belt **22** is arranged on top of the shelving system **4,** in order to advantageously allow the passage of the operators in the separation interspace

7 in case of need, while a second belt **23** is positioned at the base of the display structure **2.**

[0073] According to a construction variant of the invention, not represented herein, there is a third conveyor belt arranged at the base of the separation interspace **7.**

[0074] Advantageously, the third conveyor belt makes it possible both to increase the overall transportation capacity of the system and to retrieve any products that may have fallen from the collection unit **18** during the collection operation. Preferably, the shelving system **4** and the display structure **2** are integrated in storage modules **12a, 12b, 12c, 12d** that can be positioned side by side and connected in succession in such a way as to form a single modular system **17.** Each module comprises a display structure **2,** which is provided with shelves/display stands **3** accessible from one side of the display structure **2** itself, and a corresponding shelving system **4a, 4b, 4c, 4d,** associated with the display structure **2** on the opposite side with respect to the shelves/display stands **3.**

[0075] Preferably, the module also comprises means for connection to the adjacent modules, not represented herein, that ensure the reciprocal alignment of the display structures **2** and the shelving systems **4a, 4b, 4c, 4d,** indicated as a whole by **4,** as well as means for supporting the guide means **13** of the collection unit **18,** not represented, either.

[0076] Preferably, there are two types of module: a rectilinear module, several variants **12a, 12b, 12c** and **12d** of which are illustrated by way of example in Figures from 3 to 6b, and a curvilinear module.

[0077] In particular, for example, the module **12a** illustrated in Figure 3 comprises also a delivery point **5a.**

[0078] The curvilinear modules are schematically illustrated in Figure 1, where they are all indicated by **12e** for the sake of simplicity.

[0079] The above mentioned curvilinear modules **12e** advantageously allow the continuity of the storage system to be maintained at the corners of the room, but also to obtain special configurations of the selling space **1,** for example by means of recessed sections **R** that may delimit different areas of the space itself.

[0080] Clearly, the proper combination of the above mentioned types of rectilinear module **12a, 12b, 12c, 12d** and curvilinear module **12e** makes it possible to obtain modular systems **17** of any shape.

[0081] Therefore, the modules and the modular system **17** described above make it possible to create a storage system suitable for a selling space **1** having any shape, and thus to achieve one of the objects of the invention.

[0082] In particular, to advantage, the adaptability of the modular system **17** of the invention allows it to be applied also in places with limited space, like, for example, the points of sale present in supermarkets.

[0083] Furthermore, the continuity of the above mentioned modular system **17** can be maintained also in proximity of doors and windows, by providing suitable modules with through openings that ensure that they can be accessed and opened.

[0084] Clearly, the figures from 3 to 6b illustrate only a few of the several construction variants of the modules that, according to the invention, may be carried out in further shapes and sizes to advantageously allow more combinations to be created.

[0085] Preferably, according to the invention, the display structure **2** of each module **12a, 12b, 12c, 12d** is movably connected to the corresponding shelving system **4a, 4b, 4c, 4d** via connection means that allow the operator to move the display structure **2** to access the shelving system.

[0086] The above mentioned connection means are preferably hinge elements that allow the display structure **2** to be opened like the door of a wardrobe, as shown in Figures 4a and 4b, which show the same module, indicated by 12b, with part of the display structure **2** respectively open and closed.

[0087] In the construction variant **12d,** shown open and closed respectively in Figures 6a and 6b, the connection means are sliding guide elements that allow the display structure **2** to travel towards the outside.

[0088] It is evident that the display structure **2** can be opened through connection means of any other known type, in addition to those described above. Advantageously, the above mentioned possibility of access allows the seller to collect the stocked products also in case of malfunction of the handling unit **6** resulting, for example, from a power failure.

[0089] Preferably but not necessarily, the selling space **1** of the invention is also provided with consultation/data entry terminals **5,** accessible to a user from the inside of the selling space **1,** operatively connected to the handling unit **6.**

[0090] The consultation/data entry terminals **5** allow the customer to request, for example via a graphic interface, a product stored in the shelving system **4,** which is automatically collected by the handling unit **6** and deposited on a delivery point **5b** specifically provided for use by customers.

[0091] The above mentioned consultation/data entry terminals **5** achieve the object to allow the customers to collect a product directly, with no need to request it to the seller and therefore with no need to wait their turn.

[0092] In addition thereto, the consultation/data entry terminals **5** can also be arranged so as to allow the customers to carry out other operations like, for example, pay for the products and/or book them and thus advantageously avoid waiting at the cash desk.

[0093] Preferably, there are also dispenser units **8** communicating with the outside of the selling space **1** and fed by the handling unit **6,** through which the customers can order products and receive them even after the shop **9** or the sales point has closed.

[0094] The above mentioned distributor units **8** preferably comprise an enquiry terminal connected to an electronic data base containing information on the products

available at the selling space **1** in order to advantageously help the customers in their choice.

[0095] Said data base may be located inside the selling space **1** and also in a remote place, in which case its connection with the enquiry terminal can be obtained through the Internet, or through a private network or any other known method. Obviously, even the consultation/data entry terminals **5** can be connected to the data base like the enquiry terminals, obtaining analogous advantages.

[0096] Furthermore, the enquiry terminal may preferably be operatively connected to remote control means at the disposal of a seller who may also not be present in the shop **9.**

[0097] The remote control mentioned above is particularly advantageous for pharmacies, considering that for some pharmaceutical products a doctor's prescription is required.

[0098] In this case, in fact, the enquiry terminal described above allows the customer to transmit a medical prescription or analogous documentation via a data transmission system to a remote pharmacist, who examines it and if it is in order authorizes the dispensing of the product via the control means. Furthermore, advantageously, the IT connection allows the remote seller to manage more than one selling space at the same time.

[0099] Still advantageously, the IT connection allows an authorized operator to remotely monitor the availability of products in the selling space and, if necessary, replenish the stocks.

[0100] For the reasons explained above, it is clear that the invention achieves all the set objects.

[0101] In particular, the arrangement of the shelving system along the perimeter of the selling space makes it possible to exploit the available space more effectively compared to the storage systems of known type, obtaining a larger stocking volume.

[0102] The arrangement described above also eliminates the need to create an apposite space to be used as a depot in the selling space.

[0103] Furthermore, the modular system of the invention can be adapted to selling spaces having any shape and configuration.

[0104] Again, the delivery points arranged behind the counter make it possible to avoid excessive stress for the operator and to reduce the time required for collecting the stored products.

[0105] Finally, the presence of terminals at the disposal of the customers allows them to collect a stored product directly, without the aid of the seller, if necessary also after the shop has closed.

[0106] On implementation, the selling space, the storage module and the modular system that are the subjects of the invention may undergo changes that, though not illustrated or described herein, shall nonetheless be covered by the present patent, provided that they come within the scope of the claims that are expressed below.

[0107] Where technical features mentioned in any claim are followed by reference signs, those reference sings have been included for the sole purpose of increasing the intelligibility of the claims and accordingly such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

Claims

1. Module (12d) for containing consumable products, comprising:

- a display structure (2) that develops mainly in a vertical direction for displaying said products, provided with a plurality of shelves and/or display stands (3) accessible from one side of said display structure (2);
- at least one shelving system (4d) for storing further products, associated with said display structure (2) on the opposite side with respect to said shelves and/or display stands (3), said shelving system (4d) being spaced from said display structure (2) by a separation interspace (7);
- means for connecting other modules to the sides of said module;
- means for supporting guide means (13) developed along said shelving system (4d) to slidingly house a unit (18) for collecting the products stored in said shelving system (4d),

characterized in that said shelving system (4d) comprises a plurality of drawers (25) that can be pulled out in said separation interspace (7), and drive means for opening/closing said drawers (25).

2. Storage module (12d) according to claim 1), **characterized in that** it comprises at least two of said shelving systems, arranged opposite to each other and spaced by a separation interspace.

3. Storage module (12d) according to any preceding claim, **characterized in that** said display structure (2) is movably associated with said shelving system (4d) via connection means in order to allow an operator to move said display structure (2) and access said shelving system (4d).

4. Modular system (17) for containing consumable products, particularly suited to be used in a selling space (1), comprising:

- two or more storage modules (12a, 12b, 12c, 12d, 12e), arranged side by side in succession in order to define a direction of development of said modular system (17);

each one of said storage modules (12a, 12b, 12c, 12d, 12e) comprising:

- a display structure (2) that develops mainly in a vertical direction for displaying said products, provided with a plurality of shelves and/or display stands (3) accessible from one side of said display structure (2);
- at least one shelving system (4a; 4b; 4c; 4d) for storing further products, associated with said display structure (2) on the opposite side with respect to said shelves and/or display stands (3), said shelving system (4a; 4b; 4c; 4d) being spaced from said display structure (2) by a separation interspace (7);
- means for connecting other modules to the sides of said module;

the modular system further comprising a handling unit (6) of said products stored in said shelving system along at least said direction of development, **characterized in that** at least one of said storage modules (12d) comprises a shelving system (4d) provided with a plurality of drawers (25) that can be pulled out in said separation interspace (7), and with drive means for opening/closing said drawers (25).

5. Modular system (17) according to claim 4), **characterized in that** said handling unit (6) comprises a unit (18) for collecting said products stored in said shelving system (4d), slidingly associated with guide means (13).

6. Modular system according to claim 5), **characterized in that** said collection unit (18) comprises:

- at least one carriage (19) slidingly associated with said guide means (13);
- a vertical mast (20) associated with said carriage (19);
- a shuttle (21) slidingly associated with said vertical mast (20) and provided with means (21 a) for collecting said products.

7. Modular system (17) according to claim 6), **characterized in that** said collection means (21 a) comprise suckers (21 c) facing downwards.

8. Modular system (17) according to any claim from 4) to 7), **characterized in that** at least one of said storage modules (12e) is curvilinear.

9. Modular system (17) according to any claim from 4) to 8), **characterized in that** said handling unit (6) is located in said separation interspace (7).

10. Modular system (17) according to any claim from 4) to 9), **characterized in that** it comprises at least one delivery point (5a, 5b) of said products stored in said shelving system (4), operatively connected to said handling unit (6) and accessible by a user.

11. Modular system (17) according to claim 10), **characterized in that** said handling unit (6) comprises at least one conveyor belt (22, 23) for conveying said products grabbed by said collection unit (18) to said delivery point (5a, 5b).

12. Selling space (1) for consumable products, **characterized in that** it comprises:

- a modular system (17) according to claim **10) or** 11), which delimits at least partially said selling space (1), wherein said shelves and/or display stands (3) and said delivery point (5a, 5b) of said modular system (17) can be accessed by a user from the inside of said selling space (1);
- distributor units (8) of said stored products that can be accessed by a user from the outside of said selling space (1) and that are operatively connected to the handling unit (6) of said modular system (17).

Patentansprüche

1. Modul (12d) zur Aufbewahrung von Konsumgütern, Folgendes umfassend:

- eine Ausstellstruktur (2), die sich hauptsächlich in senkrechter Richtung erstreckt, um die besagten Produkte auszustellen, mit einer Vielzahl von Regalböden und/oder Ausstellern (3) versehen, die von einer Seite der besagten Ausstellstruktur (2) zugänglich sind;
- wenigstens ein Regalsystem (4d) für die Lagerung weiterer Produkte, das an der den besagten Regalböden und/oder Ausstellern (3) entgegengesetzten Seite mit der besagten Ausstellstruktur (2) verbunden ist, wobei das besagte Regalsystem (4d) durch einen Trennungs-Zwischenraum (7) von der besagten Ausstellstruktur (2) distanziert ist;
- Mittel zur Verbindung weiterer Module an den Seiten des besagten Moduls;
- Führungsmittel (13), die an dem besagten Regalsystem (4d) entlang verlaufen, um gleitend eine Einheit (18) für die Entnahme der in besagtem Regalsystem (4d) gelagerten Produkte aufzunehmen,

dadurch gekennzeichnet, dass das besagte Regalsystem (4d) eine Vielzahl von Schubfächern (25) umfasst, die in den besagten Trennungs-Zwischenraum (7) ausgezogen werden können, sowie Antriebsmittel zum Öffnen/Schließen der besagten

Schubfächer (25).

2. Lagermodul (12d) gemäß Patentanspruch 1), **dadurch gekennzeichnet, dass** es wenigstens zwei der besagten Regalsysteme umfasst, die einander gegenüber angeordnet und durch einen Trennungs-Zwischenraum voneinander distanziert sind.

3. Lagermodul (12d) gemäß eines jeden der vorstehenden Patentansprüche, **dadurch gekennzeichnet, dass** die besagte Ausstellstruktur (2) beweglich durch Verbindungsmittel an dem besagtem Regalsystem (4d) befestigt ist, um dem Bediener die Bewegung der besagten Ausstellstruktur (2) und den Zugang zum besagten Regalsystem (4d) zu ermöglichen.

4. Modulsystem (17) zur Aufbewahrung von Konsumgütern, insbesondere zur Nutzung in einem Verkaufsraum (1) geeignet, Folgendes umfassend:

- zwei oder mehr Lagermodule (12a, 12b, 12c, 12d, 12e), die nacheinander nebeneinander angeordnet sind, um einen Richtungsverlauf des besagten Modulsystems (17) zu definieren;

wobei jedes der besagten Lagermodule (12a, 12b, 12c, 12d, 12e) Folgendes umfasst:

- eine Ausstellstruktur (2), die sich hauptsächlich in senkrechter Richtung erstreckt, um die besagten Produkte auszustellen, versehen mit einer Vielzahl von Regalböden und/oder Ausstellern (3), die von einer Seite der besagten Ausstellstruktur (2) zugänglich sind;
- wenigstens ein Regalsystem (4a; 4b; 4c; 4d) zur Lagerung weiterer Produkte, das an der den besagten Regalen und/oder Ausstellern (3) entgegengesetzten Seite mit der besagten Ausstellstruktur (2) verbunden ist, wobei das besagte Regalsystem (4a; 4b; 4c; 4d) durch einen Trennungs-Zwischenraum (7) von der besagten Ausstellstruktur (2) distanziert ist;
- Mittel zum Anschluss weiterer Module an den Seiten jedes Moduls;

wobei das Modulsystem weiterhin umfasst eine Umschlageinheit (6) zum Umschlagen der besagten im besagten Regalsystem enthaltenen Produkte entlang der besagten, wenigstens einen Richtung, **dadurch gekennzeichnet, dass** wenigstens eines der besagten Lagermodule (12d) ein Regalsystem (4d) umfasst, das eine Vielzahl von Schubfächern (25) aufweist, die in den besagten Trennungs-Zwischenraum (7) ausgezogen werden können, sowie Antriebsmittel zum Öffnen/Schließen der besagten Schubfächer (25).

5. Modulsystem (17) gemäß Patentanspruch 4), **dadurch gekennzeichnet, dass** die besagte Umschlageinheit (6) eine Entnahmeeinheit (18) zur Entnahme der besagten, in besagtem Regalsystem (4d) gelagerten Produkte umfasst, die gleitend mit besagten Führungsmitteln (13) verbunden sind.

6. Modulsystem gemäß Patentanspruch 5), **dadurch gekennzeichnet, dass** die besagte Entnahmeeinheit (18) Folgendes umfasst:

- wenigstens einen gleitend mit besagten Führungsmitteln (13) verbundenen Schlitten (19);
- einen mit dem besagten Schlitten (19) verbundenen senkrechten Mast (20);
- einen gleitend mit besagtem senkrechten Mast (20) verbundenen Pendelwagen (21), der mit Mitteln (21 a) zur Entnahme der besagten Produkte versehen ist.

7. Modulsystem (17) gemäß Patentanspruch 6), **dadurch gekennzeichnet, dass** die besagten Entnahmemittel (21 a) nach unten gerichtete Saugnäpfe (21 c) umfassen.

8. Modulsystem (17) gemäß eines jeden der Patentansprüche von 4) bis 7), **dadurch gekennzeichnet, dass** wenigstens eines der besagten Lagermodule (12e) krummlinig ist.

9. Modulsystem (17) gemäß eines jeden der Patentansprüche von 4) bis 8), **dadurch gekennzeichnet, dass** die besagte Umschlageinheit (6) in dem besagten Trennungs-Zwischenraum (7) positioniert ist.

10. Modulsystem (17) gemäß eines jeden der Patentansprüche von 4) bis 9), **dadurch gekennzeichnet, dass** es wenigstens eine Ausgabestelle (5a, 5b) für die besagten, in besagtem Regalsystem (4) gelagerten Produkte umfasst, die operativ mit der besagten Umschlageinheit (6) verbunden und für einen Benutzer zugänglich ist.

11. Modulsystem (17) gemäß Patentanspruch 10), **dadurch gekennzeichnet, dass** die besagte Umschlageinheit (6) wenigstens ein Förderband (22, 23) umfasst, um die besagten, durch besagte Entnahmeeinheit (18) entnommenen Produkte zur besagten Ausgabestelle (5a, 5b) zu leiten.

12. Verkaufsraum (1) für Konsumgüter, **dadurch gekennzeichnet, dass** er Folgendes umfasst:

- ein Modulsystem (17) gemäß Patentanspruch 10) oder 11), das wenigstens teilweise den besagten Verkaufsraum (1) begrenzt, wobei die besagten Regale und/oder Aussteller (3) und die besagte Ausgabestelle (5a, 5b) des besag-

ten Modulsystems (17) für einen Benutzer aus dem Inneren des besagten Verkaufsraums (1) zugänglich sind;
- Spenderautomaten (8) für die besagen, gelagerten Produkte, die für einen Benutzer außerhalb des besagten Verkaufsraums (1) zugänglich und operativ mit der Umschlageinheit (6) des besagten Modulsystems (17) verbunden sind.

Revendications

1. Module (12d) apte à contenir des produits de consommation, comprenant:

- une structure d'exposition (2) qui se développe principalement en direction verticale pour exposer lesdits produits, dotée d'une pluralité d'étagères et/ou présentoirs (3) accessibles d'un côté de ladite structure d'exposition (2);
- au moins un rayonnage (4d) pour stocker d'autres produits, associé avec ladite structure d'exposition (2) sur le côté opposé par rapport auxdites étagères et/ou présentoirs (3), ledit rayonnage (4d) étant espacé de ladite structure d'exposition (2) par un espace vide de séparation (7);
- des moyens pour relier d'autres modules aux côtés dudit module;
- des moyens de guidage (13) développés le long dudit rayonnage (4d) pour loger de manière coulissante une unité de prise (18) des produits stockés dans ledit rayonnage (4d),

caractérisé en ce que ledit rayonnage (4d) comprend une pluralité de tiroirs (25) qui peuvent être extraits dans ledit espace vide de séparation (7), et des moyens de motorisation pour l'ouverture/la fermeture desdits tiroirs (25).

2. Module de stockage (12d) selon la revendication 1), **caractérisé en ce qu**'il comprend au moins deux desdits rayonnages, disposés de manière opposée entre eux et espacés par un espace vide de séparation.

3. Module de stockage (12d) selon l'une quelconque des revendications précédentes, **caractérisé en ce que** ladite structure d'exposition (2) est associée de manière amovible avec ledit rayonnage (4d) par des moyens de connexion de façon à permettre qu'un opérateur puisse déplacer ladite structure d'exposition (2) et accéder audit rayonnage (4d).

4. Système modulaire (17) apte à contenir des produits de consommation, particulièrement indiqué pour être utilisé dans un espace de vente (1), comprenant:

- deux ou plusieurs modules de stockage (12a, 12b, 12c, 12d, 12e), disposés l'un à côté de l'autre en succession de façon à définir une direction de développement dudit système modulaire (17);

chacun desdits modules de stockage (12a, 12b, 12c, 12d, 12e) comprenant:

- une structure d'exposition (2) qui se développe principalement en direction verticale pour exposer lesdits produits, dotée d'une pluralité d'étagères et/ou de présentoirs (3) accessibles d'un côté de ladite structure d'exposition (2);
- au moins un rayonnage (4a; 4b; 4c; 4d) pour stocker d'autres produits, associé avec ladite structure d'exposition (2) sur le côté opposé par rapport auxdites étagères et/ou présentoirs (3), ledit rayonnage (4a; 4b; 4c; 4d) étant espacé de ladite structure d'exposition (2) par un espace vide de séparation (7);
- des moyens pour relier d'autres modules aux côtés dudit module;

le système modulaire comprenant en outre une unité de manutention (6) desdits produits déposés dans ledit rayonnage le long au moins de ladite direction de développement,
caractérisé en ce qu'au moins un desdits modules de stockage (12d) comprend un rayonnage (4d) doté d'une pluralité de tiroirs (25) qui peuvent être extraits dans ledit espace vide de séparation (7), et de moyens de motorisation pour l'ouverture/fermeture desdits tiroirs (25).

5. Système modulaire (17) selon la revendication 4), **caractérisé en ce que** ladite unité de manutention (6) comprend une unité de prise (18) apte à prélever lesdits produits stockés dans ledit rayonnage (4d), associée de manière coulissante avec des moyens de guidage (13).

6. Système modulaire selon la revendication 5), **caractérisé en ce que** ladite unité de prise (18) comprend:

- au moins un chariot (19) associé de manière coulissante avec lesdits moyens de guidage (13);
- une tige verticale (20) associée avec ledit chariot (19);
- une navette (21) associée de manière coulissante avec ladite tige verticale (20) et dotée de moyens de prise (21 a) desdits produits.

7. Système modulaire (17) selon la revendication 6), **caractérisé en ce que** lesdits moyens de prise (21 a) comprennent des ventouses (21 c) tournées vers le bas.

8. Système modulaire (17) selon l'une des revendications de 4) à 7), **caractérisé en ce qu**'au moins un desdits modules de stockage (12e) est curviligne.

9. Système modulaire (17) selon l'une quelconque des revendications de 4) à 8), **caractérisé en que** ladite unité de manutention (6) est logée dans ledit espace vide de séparation (7).

10. Système modulaire (17) selon l'une quelconque des revendications de 4) à 9), **caractérisé en ce qu**'il comprend au moins un point de livraison (5a, 5b) desdits produits stockés dans ledit rayonnage (4), relié de manière opérative à ladite unité de manutention (6) et accessible par un utilisateur.

11. Système modulaire (17) selon la revendication 10), **caractérisé en ce que** ladite unité de manutention (6) comprend au moins une bande transporteuse (22, 23) pour acheminer lesdits produits prélevés de ladite unité de prise (18) audit point de livraison (5a, 5b).

12. Espace de vente (1) pour produits de consommation, **caractérisé en ce qu**'il comprend:

- un système modulaire (17) selon la revendication 10) ou 11), qui délimite au moins partiellement ledit espace de vente (1), où lesdites étagères et/ou présentoirs (3) et ledit point de livraison (5a, 5b) dudit système modulaire (17) sont accessibles par un utilisateur de l'intérieur dudit espace de vente (1);
- des unités de distribution (8) desdits produits stockés qui sont accessibles par un utilisateur de l'extérieur dudit espace de vente (1) et qui sont reliés de manière opérative à ladite unité de manutention (6) et dudit système modulaire (17).

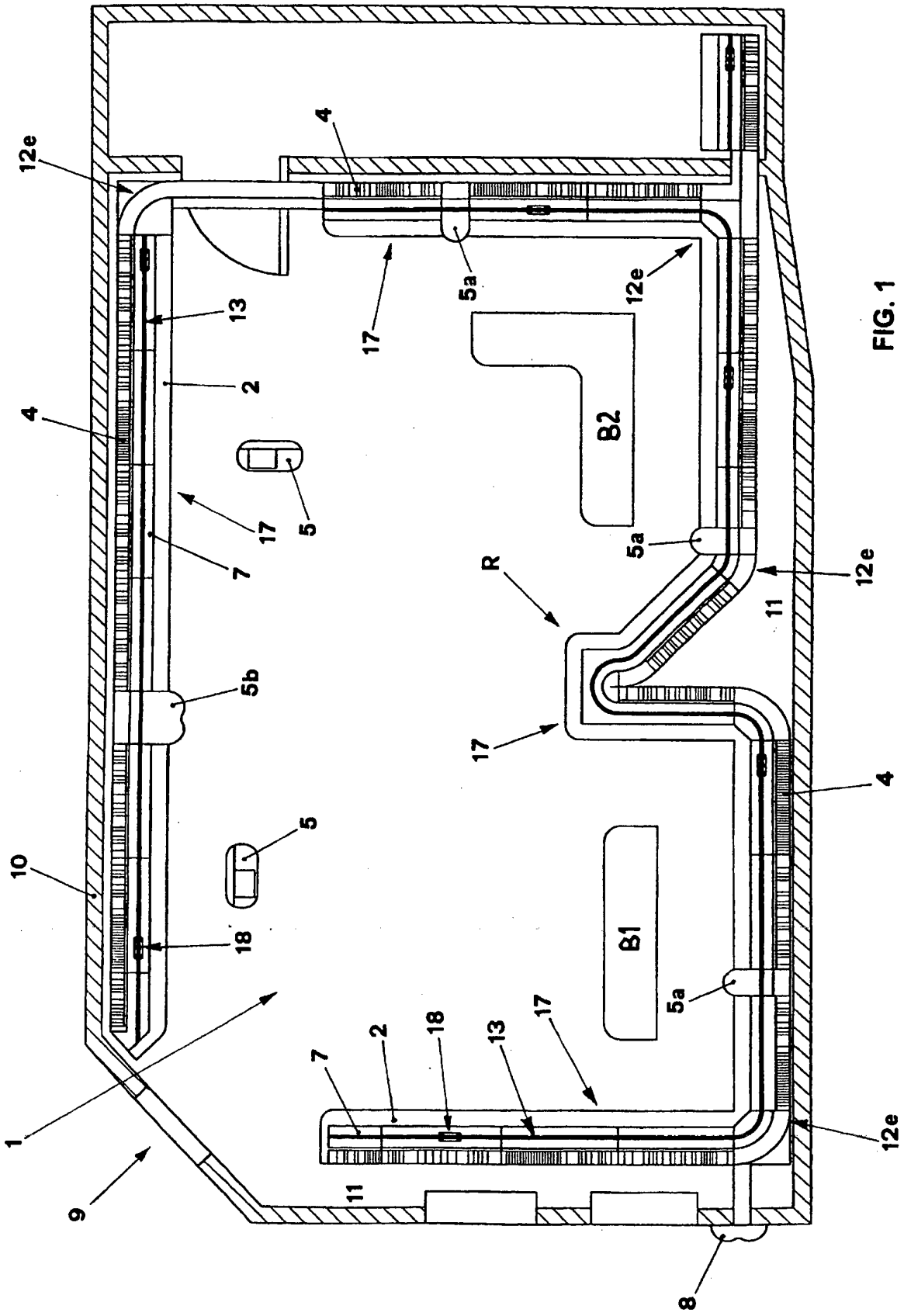

12e
4
5a
12e
13
17
2
B2
4
5
17
7
5a
12e
R
11
5b
17
4
5
10
B1
18
5a
17
2
18
13
7
12e
1
11
9
8

FIG. 1

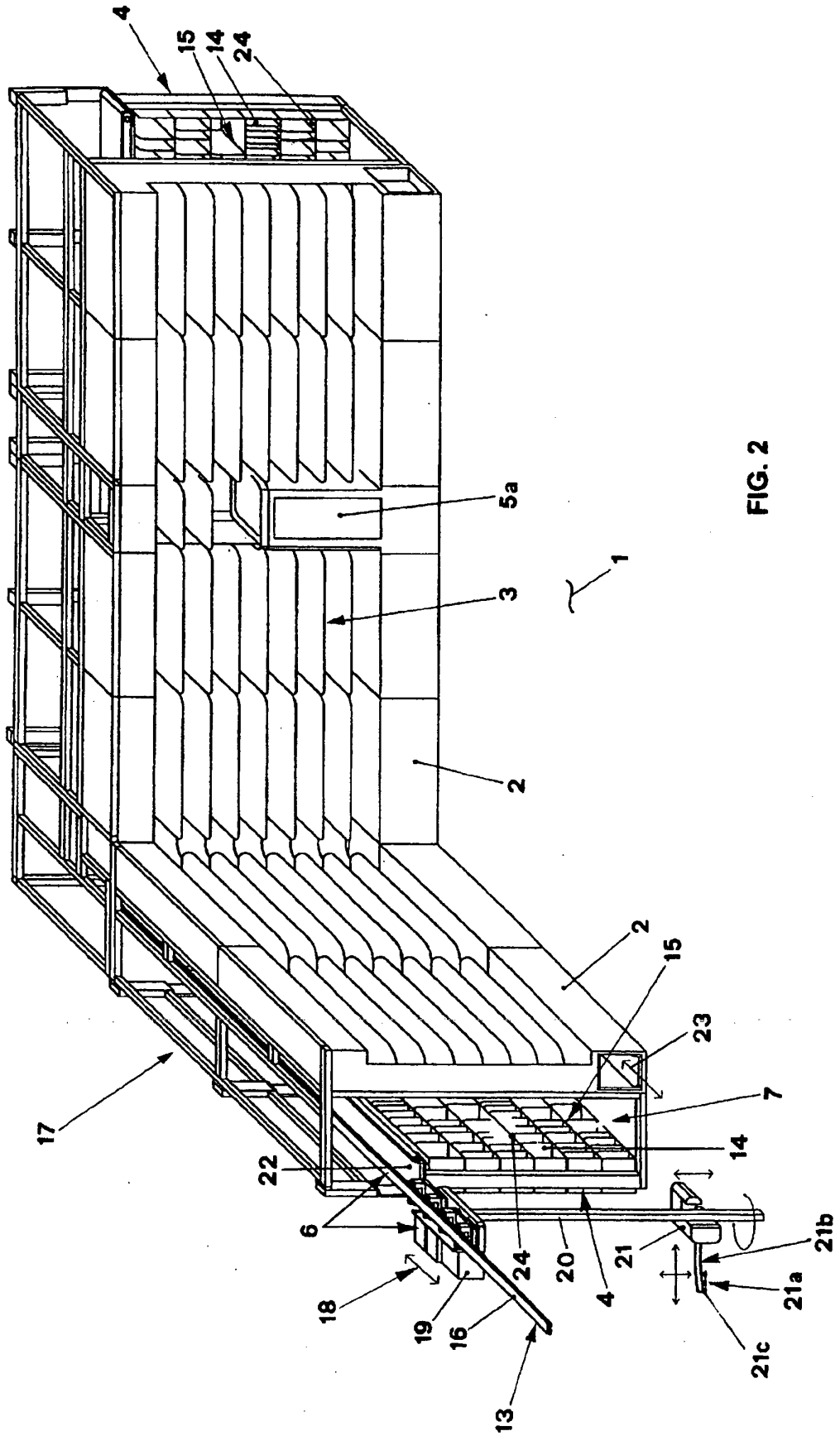


FIG. 2

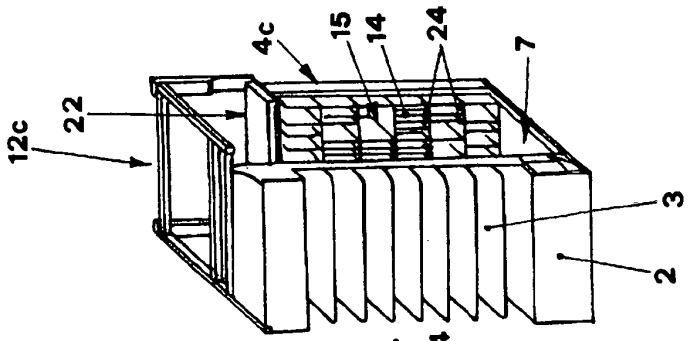


FIG. 5

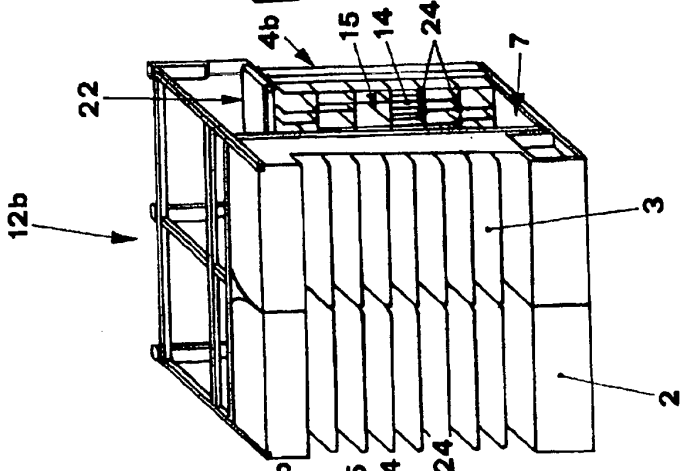


FIG. 4b

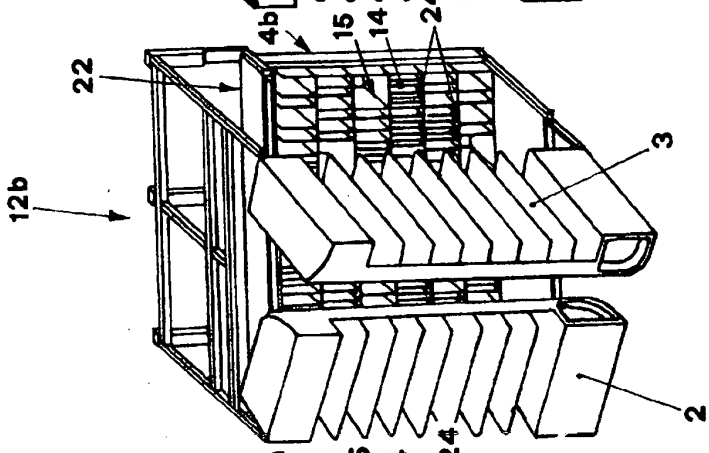


FIG. 4a

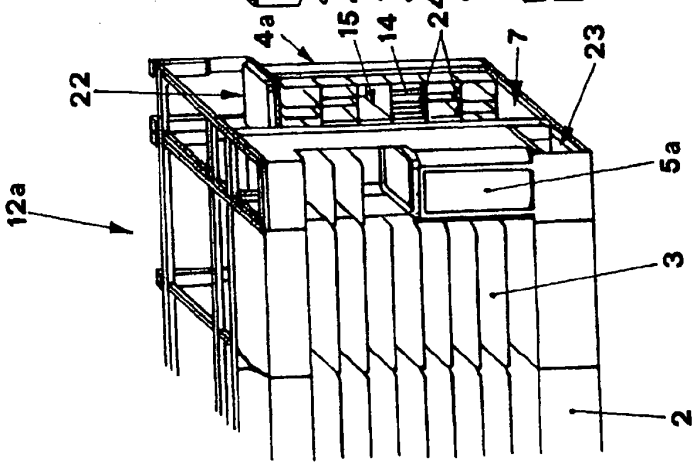


FIG. 3

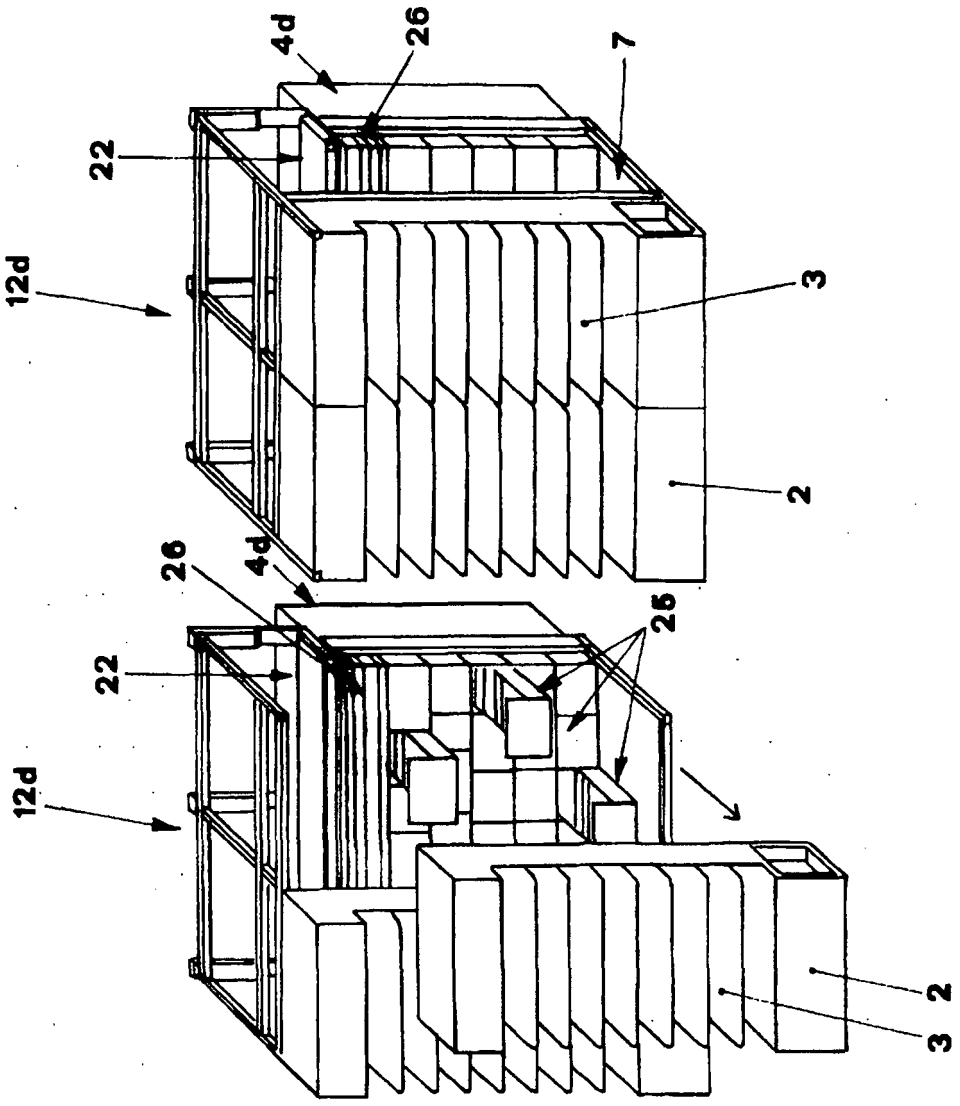


FIG. 6b

FIG. 6a

REFERENCES CITED IN THE DESCRIPTION

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