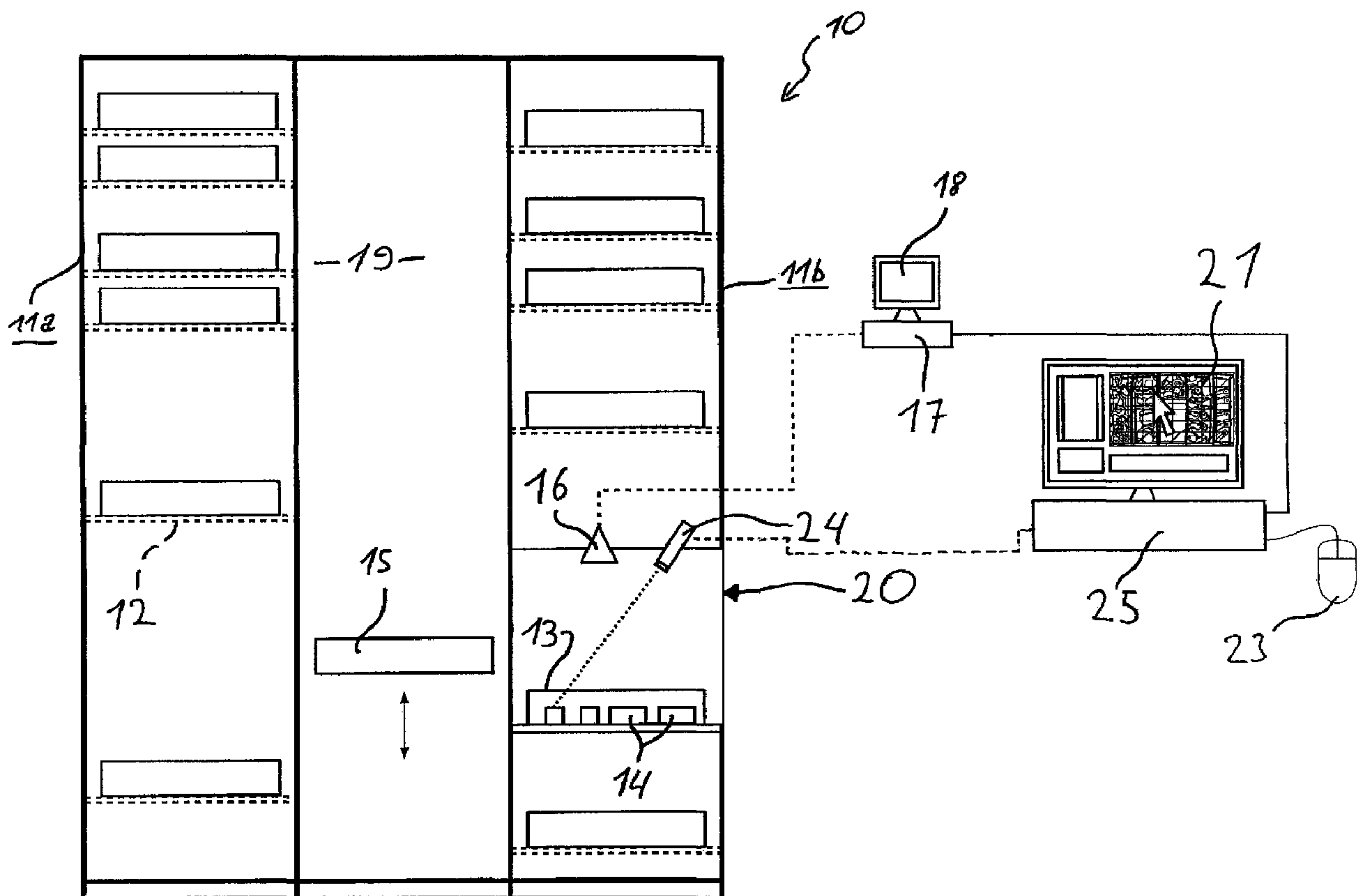




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(54) Titre : BAIE DE RANGEMENT AVEC SELECTION DES ARTICLES
(54) Title: HIGH RACK WITH STORED GOODS SELECTION



(57) Abrégé/Abstract:

A storage rack (10) with a multiplicity of stacked supports (12) for supporting containers (13) transferable by means of an automatic storage/retrieval device (15), featuring at least one access opening (20) for storage/retrieval of containers (13) and including a



(57) **Abrégé(suite)/Abstract(continued):**

computer (17) in which information as to the stored articles (14) is saved, at least one digital camera (16) being provided imaging the articles (14) held in the containers (13) and the digital image information being saved in the computer (17) for display by means of a display means (21, 18), has in addition assigned to a display means (18, 21) a pointer device (22, 23) by means of which the article (14) to be retrieved is selectable from the digital image information.

Abstract

A storage rack (10) with a multiplicity of stacked supports (12) for supporting containers (13) transferable by means of an automatic storage/retrieval device (15), featuring at least one access opening (20) for storage/retrieval of containers (13) and including a computer (17) in which information as to the stored articles (14) is saved, at least one digital camera (16) being provided imaging the articles (14) held in the containers (13) and the digital image information being saved in the computer (17) for display by means of a display means (21, 18), has in addition assigned to a display means (18, 21) a pointer device (22, 23) by means of which the article (14) to be retrieved is selectable from the digital image information.

(Fig. 1)

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High rack with stored goods selection

The present invention relates to a storage rack with a multiplicity of stacked supports for supporting containers transferable by means of an automatic storage/retrieval device, featuring at least one access opening for storage/retrieval of containers and including a computer in which information as to the stored articles is saved, at least one digital camera being provided imaging the articles held in the containers and the digital image information being saved in the computer for display by means of a display means.

In such storage racks handling diverse kinds of storage articles it is known to capture the nature and quantity of the articles in the containers. It is likewise known to automatically capture the quantity of the articles by means of the weight.

DE 201 21 417 U1 teaches in addition how a storage rack features a digital camera which images the articles in the containers. The resulting information is then saved by means of a warehouse inventory program in the computer. The saved information can be displayed on a monitor.

The invention is thus based on the object of proposing a storage rack of the aforementioned kind wherein selecting the articles to be retrieved is sophisticated.

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To achieve this object it is proposed in accordance with the invention that the display means is assigned a pointer device by means of which the article to be retrieved is selectable from the digital image information.

5 In the storage rack in accordance with the invention the article to be retrieved is now selectable by intuitive pointing without the container needing to be retrieved. Likewise, it is now no longer necessary to select the wanted article from a list or similar abstract medium. Making such
10 a direct selection is substantially more convenient than using digital or tabulated data.

This invention relates to a storage rack with a multiplicity of stacked supports for supporting containers transferable by means of an automatic storage/retrieval device, featuring
15 at least one access opening for storage/retrieval of containers and including a computer in which information as to the stored articles is saved, at least one digital camera being provided imaging the articles held in the containers and the digital image information being saved in the
20 computer for display by means of a display means, wherein the display means is assigned a pointer device devised as a touch screen by means of which the article to be retrieved is selectable from the digital image information of the visually displayed container and wherein the
25 storage/retrieval device transfers the container holding the selected article into the access opening.

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Advantageously a computer mouse is provided as the pointing device. This is advantageous because selecting the article is then done by a device with which the operator is already familiar from other situations.

- 5 It is just as possible to advantage that the pointing device is devised together with the monitor as a touch screen. Thus, the need to make a separate pointing device available is eliminated which is especially an advantage when no suitable surface is available, for example, for operating a
10 computer mouse.

In addition, an optical highlighting unit can be provided to advantage which highlights the selected article after the container has been transferred into the access opening.

Further features and advantages of the invention will now be detailed from the description of example embodiments with reference to the drawing in which:

FIG. 1 is a diagrammatic side view of a first embodiment of a storage rack in accordance with the invention and

FIG. 2 is a diagrammatic side view of a second embodiment of a storage rack in accordance with the invention.

Referring now to FIG. 1 there is illustrated a first embodiment of a storage rack 10 in accordance with the invention comprising two modules 11a, 11b arranged spaced away from each other. Between the modules 11a, 11b a transfer space 19 is provided in which an automatic storage/retrival device 15 can be automatically travelled.

The modules 11a, 11b, comprise a multitude of supports 12 spaced away from each other in pairs, arranged on facing sidewalls. The supports 12 serve to support trough-shaped containers 13.

Provided at the module 11b is an access opening 20 for storage or removal of the containers 13. Arranged at the top of the access opening 20 is a digital camera 16 for imaging an article 14 held in the container 13. The information acquired by the digital camera 16 is communicated to a computer 17 in which an image capture program is stored. The article 14 held in the container 13 can then be displayed on the display means 21 of the workstation computer 25 without removing the container 13.

With the help of the visual representation of the container 13 which is displayed by the display means 21, which is implemented as e.g. a monitor, an article 14 may be selected for retrieval by means of a pointing device. In this example embodiment the pointing device is a computer mouse 23.

After selection of the article 14 to be retrieved the corresponding container 13 is shifted via the transfer space 19 into the access opening 20 by means of an automatic storage/retrieval device 15 devised for automated travel.

As soon as the container 13 is located in the access opening 20 the article 14 previously selected by means of the pointing device 23 can be highlighted by means of an optical highlighting unit 24 to facilitate it being located.

Referring now to FIG. 2 there is illustrated a second embodiment of a storage rack in accordance with the invention. This example embodiment differs from the first embodiment simply by how the pointing device is devised.

In the second embodiment the pointing device is combined with the display means 21 like a touch screen 22. It is thus no longer necessary to make a separate pointing device available.

It is likewise no longer necessary to learn how to use the pointing device. Instead, an article 14 is simply selected by intuitive tactile selection.

The pointing devices 22, 23 as aforementioned are mentioned simply by way of example. It is just as possible to select the article with other pointing devices such as, for example, a trackball or the like.

The invention excels by an advantageous combination of display means 18, 21 and pointer device 22, 23 for intuitive selection of an article 14 to be retrieved now with enhanced efficiency and expediency. Locating the wanted article 14 is facilitated as well.

List of Reference Numerals

10	storage rack
11a/b	module
12	support
13	container
14	article
15	automatic storage/retrieval device
16	digital camera
17	computer (controller)
18	display means (monitor)
19	transfer space
20	access opening
21	display means (touch screen monitor)
22	touch screen
23	pointer device (computer mouse)
24	optical highlighting unit
25	workstation computer

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CLAIMS:

1. A storage rack with a multiplicity of stacked supports for supporting containers transferable by means of an automatic storage/retrieval device, featuring at least one
5 access opening for storage/retrieval of containers and including a computer in which information as to the stored articles is saved, at least one digital camera being provided imaging the articles held in the containers and the digital image information being saved in the computer for display by
10 means of a display means, wherein the display means is assigned a pointer device devised as a touch screen by means of which the article to be retrieved is selectable from the digital image information of the visually displayed container and wherein the storage/retrieval device transfers the container
15 holding the selected article into the access opening.
2. The storage rack as set forth in claim 1, wherein an optical highlighting unit is provided which highlights the previously selected article after transfer of the container into the access opening.
- 20 3. The storage rack as set forth in claim 2, wherein the optical highlighting unit is devised to highlight the article by means of a steerable laser beam.
4. The storage rack as set forth in claim 2, wherein the optical highlighting unit is devised to highlight the article
25 by means of LED light.

