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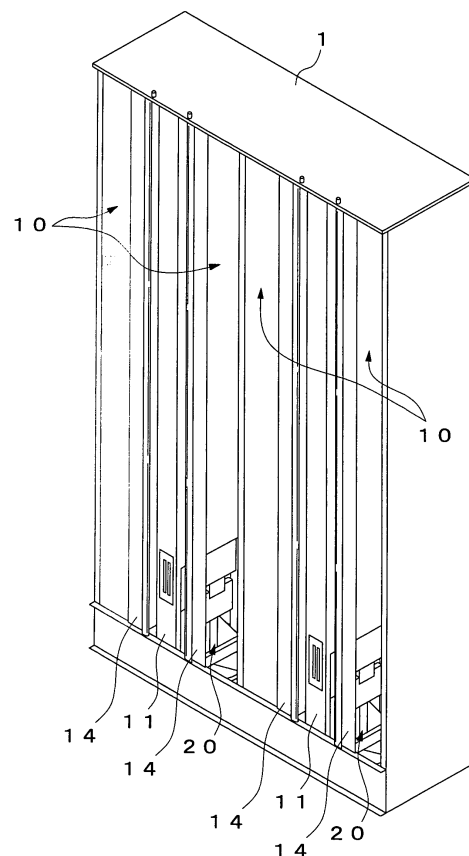
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(54) **Article delivery device**

(57) The present invention is intended to provide an article delivery device capable of preventing, after an article is delivered, articles remaining in its article storage from being disturbed in alignment. As the article delivery device is provided with a contact plate (15) that can come into contact with the highest-placed one of the articles (A) stored in the article storage (10), delivering operations can be accomplished reliably without allowing, when the lowest-placed article (A) is delivered, the remaining articles (A) from being disturbed in alignment or being stuck by the impact of their drop on the door plates (22). Furthermore, as the contact plate (15) is composed of a contact portion (15a) coming into contact with the upper face of the article (A) and an engaging portion (15b) engaging with a drop preventing plate (14), the contact plate (15) can be moved in the vertical direction in a state of being engaged with the drop preventing plate (14) to prevent the contact plate (15) from being caused to come off the upper face of the article (A) by the delivering operations of the article delivery device.

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# EUROPEAN SEARCH REPORT

Application Number  
EP 05 25 0815

| DOCUMENTS CONSIDERED TO BE RELEVANT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                         |                                                   |                                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|--------------------------------------------|
| Category                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Citation of document with indication, where appropriate, of relevant passages                                           | Relevant to claim                                 | CLASSIFICATION OF THE APPLICATION (IPC)    |
| X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | GB 1 288 190 A (FRIESE ET AL)<br>6 September 1972 (1972-09-06)                                                          | 1,2                                               | INV.<br>G07F11/04                          |
| Y                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | * page 1, line 52 - line 83 *<br>* page 1, line 92 - page 2, line 85;<br>figures 1,2 *<br>* page 1, line 10 - line 13 * | 3-5                                               |                                            |
| X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | US 4 676 398 A (KOKUBUN ET AL)<br>30 June 1987 (1987-06-30)                                                             | 1,2                                               |                                            |
| Y                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | * the whole document *                                                                                                  | 3-5                                               |                                            |
| Y                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | GB 2 159 802 A (THE * MAYFAIR GROUP)<br>11 December 1985 (1985-12-11)                                                   | 3-5                                               |                                            |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | * page 1, line 66 - line 81 *<br>* page 4, line 48 - line 63; figure 5 *                                                | 1,2                                               | TECHNICAL FIELDS<br>SEARCHED (IPC)<br>G07F |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | GB 2 224 498 A (* PRECISION VENDING<br>MACHINES LIMITED) 9 May 1990 (1990-05-09)<br>* the whole document *              | 1-5                                               |                                            |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | US 4 254 893 A (KONDO ET AL)<br>10 March 1981 (1981-03-10)<br>* the whole document *                                    | 1-5                                               |                                            |
| The present search report has been drawn up for all claims                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                         |                                                   |                                            |
| Place of search<br>Munich                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                         | Date of completion of the search<br>22 March 2006 | Examiner<br>Kling, J                       |
| <p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone<br/>Y : particularly relevant if combined with another document of the same category<br/>A : technological background<br/>O : non-written disclosure<br/>P : intermediate document</p> <p>T : theory or principle underlying the invention<br/>E : earlier patent document, but published on, or after the filing date<br/>D : document cited in the application<br/>L : document cited for other reasons<br/>&amp; : member of the same patent family, corresponding document</p> |                                                                                                                         |                                                   |                                            |

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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 05 25 0815

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.  
The members are as contained in the European Patent Office EDP file on  
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22-03-2006

| Patent document<br>cited in search report |   | Publication<br>date | Patent family<br>member(s) | Publication<br>date |
|-------------------------------------------|---|---------------------|----------------------------|---------------------|
| GB 1288190                                | A | 06-09-1972          | NONE                       |                     |
| -----                                     |   |                     |                            |                     |
| US 4676398                                | A | 30-06-1987          | GB 2168965 A               | 02-07-1986          |
|                                           |   |                     | JP 61115279 U              | 21-07-1986          |
|                                           |   |                     | JP 63024529 Y2             | 05-07-1988          |
| -----                                     |   |                     |                            |                     |
| GB 2159802                                | A | 11-12-1985          | NONE                       |                     |
| -----                                     |   |                     |                            |                     |
| GB 2224498                                | A | 09-05-1990          | NONE                       |                     |
| -----                                     |   |                     |                            |                     |
| US 4254893                                | A | 10-03-1981          | NONE                       |                     |
| -----                                     |   |                     |                            |                     |