PCT

WORLD INTELECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 7:
G07F 7/06

A1

(21) International Application Number: PCT/NO00/00116

(22) International Filing Date: 11 April 2000 (11.04.00)

(30) Priority Data:
19991853 19 April 1999 (19.04.99) NO

(71) Applicant (for all designated States except US):
REPANT AS [NO/NO]; Baasrudveien 2, N-3478 Nærnes (NO).

(73) Inventors:

(75) Inventors/Applicants (for US only):
GUNTVEIT, Lars [NO/NO]; Nilsemarka 11B, N-1390 Vollen (NO). ANDERSEN, Niels, Erik [NO/NO]; Sjøvollbuka 57, N-1390 Vollen (NO).

(74) Agent: HÅMSSP PATENTBYrå ANS; Eivind Håmss, Odd Skjæveland, Gunnar Håmss, Arnold Østvold, Borge Håmss, Jostein Soppeland, Box 171, N-4302 Sandnes (NO).


Published
With international search report.
In English translation (filed in Norwegian).

(54) Title: A DEVICE FOR A PAWN AUTOMAT FOR BOTTLES AND BOXES

(57) Abstract

In a reverse vending machine the feed opening (22) in the front cover (14), for bottles and cans, is without a fixed connection to pipework etc. At the same time, an opening (26) for emptying remnants is formed in the front cover (14), in the form of a bowl, which merges at the back side of the front cover into a drain pipe socket (28) positioned above an upwards open drain channel (30) in the interior of the machine, without a fixed connection between the drain pipe socket (28) and the channel (30). The front cover is possibly lockable and can be opened to the side by means of hinges (24), whereby the interior of the reverse vending machine is recovered for inspection, maintenance or repair.
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Albania</td>
<td>AL</td>
<td>Spain</td>
<td>ES</td>
<td>Lesotho</td>
<td>LS</td>
<td>Slovenia</td>
<td>SI</td>
</tr>
<tr>
<td>Armenia</td>
<td>AM</td>
<td>Finland</td>
<td>FI</td>
<td>Lithuania</td>
<td>LT</td>
<td>Slovakia</td>
<td>SK</td>
</tr>
<tr>
<td>Austria</td>
<td>AU</td>
<td>France</td>
<td>FR</td>
<td>Luxembourg</td>
<td>LU</td>
<td>Senegal</td>
<td>SN</td>
</tr>
<tr>
<td>Gabon</td>
<td>GA</td>
<td>GB</td>
<td>United Kingdom</td>
<td>MC</td>
<td>Monaco</td>
<td>MD</td>
<td>Swaziland</td>
</tr>
<tr>
<td>Georgia</td>
<td>GE</td>
<td>Ghana</td>
<td>GH</td>
<td>Republic of Moldova</td>
<td>MG</td>
<td>Togo</td>
<td>TG</td>
</tr>
<tr>
<td>Ghana</td>
<td>GH</td>
<td>Greece</td>
<td>GR</td>
<td>Madagascar</td>
<td>MK</td>
<td>Tajikistan</td>
<td>TJ</td>
</tr>
<tr>
<td>Guinea</td>
<td>GN</td>
<td>Greece</td>
<td>GR</td>
<td>Republic of Macedonia</td>
<td>ML</td>
<td>Turkmenistan</td>
<td>TM</td>
</tr>
<tr>
<td>Guinea Faso</td>
<td>BF</td>
<td>Greece</td>
<td>GR</td>
<td>Mali</td>
<td>ML</td>
<td>Turkey</td>
<td>TR</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>BG</td>
<td>Hungary</td>
<td>HU</td>
<td>Mongolia</td>
<td>MN</td>
<td>Trinidad and Tobago</td>
<td>TT</td>
</tr>
<tr>
<td>Benin</td>
<td>BJ</td>
<td>Iceland</td>
<td>IS</td>
<td>Mauritania</td>
<td>MR</td>
<td>Ukraine</td>
<td>UA</td>
</tr>
<tr>
<td>Brazil</td>
<td>BR</td>
<td>Iceland</td>
<td>IS</td>
<td>Malawi</td>
<td>MW</td>
<td>Uganda</td>
<td>UG</td>
</tr>
<tr>
<td>Belarus</td>
<td>BY</td>
<td>Italy</td>
<td>IT</td>
<td>Mexico</td>
<td>MX</td>
<td>United States of America</td>
<td>US</td>
</tr>
<tr>
<td>Canada</td>
<td>CA</td>
<td>Japan</td>
<td>JP</td>
<td>Niger</td>
<td>NE</td>
<td>Uzbekistan</td>
<td>UZ</td>
</tr>
<tr>
<td>Central African Republic</td>
<td>CF</td>
<td>Kenya</td>
<td>KE</td>
<td>Nigeria</td>
<td>NE</td>
<td>Viet Nam</td>
<td>VN</td>
</tr>
<tr>
<td>Congo</td>
<td>CG</td>
<td>Kyrgyzstan</td>
<td>KG</td>
<td>Netherlands</td>
<td>NL</td>
<td>Yugoslavia</td>
<td>YU</td>
</tr>
<tr>
<td>Switzerland</td>
<td>CH</td>
<td>Democratic People's Republic of Korea</td>
<td>KP</td>
<td>Norway</td>
<td>NO</td>
<td>Zimbabwe</td>
<td>ZW</td>
</tr>
</tbody>
</table>
A device for a pawn automat for bottles and boxes.

This invention relates to reverse vending machines, and more particularly it concerns a device by a reverse vending machine for bottles and/or cans, wherein the machine construction has a front cover, which is formed with a hole therethrough for the bottles and cans, and which covers the mechanisms behind, handling bottles and cans fed through the feed opening; counts the number and types thereof and calculates and supplies the customer, in return, with a note stating the sum due to him/her.

Said bottles and cans accepted by ordinary reverse vending machines, have essentially served as containers for drinks, and it is quite common for them to contain some remaining drops, which desirably should not be brought with the bottle or can into the structure of the reverse vending machine.

Therefore, a sink is often provided near reverse vending machines of this kind, into which sink bottles and cans
containing any remnants of drinks, can be emptied before the bottles and cans are put into the reverse vending machine.

However, it is expensive to install a particular sink at each reverse vending machine. The sink will seldom blend in with the immediate surroundings in the shop, and, although the sink is placed near the reverse vending machine, even a relatively short distance will involve that the emptying of bottles and cans will be considered a separate operation considerably slowing down the bottle depositing process.

Another drawback of reverse vending machines of the kind in question is that the dismantling of the machine construction is relatively complicated, as individual parts have been assembled and secured to one another, so that dismantling will often have to be started from the back side, i.e. opposite the machine's feed opening for bottles and cans.

The purpose of the present invention has therefore been to alleviate or reduce, to a substantial degree, these drawbacks and defects by simple and cheap means.

According to the invention said objectives have been realized in that the reverse vending machine is formed and arranged in accordance with the specifications appearing from the characterizing part of Claim 1.

According to the present invention, near the bottle/can feed opening the front cover of the reverse vending machine is formed with a particular drain opening for remnants, which does not communicate with the fixtures within in the form of joined pipes and pipe bends, the drain opening possibly being provided with a bowl with a freely ending drain pipe socket
at the back, which pipe socket may have its end opening above a fixed drain channel, located within and having an outlet of its own, but being without connection to the front cover.

The drain channel may conveniently be placed under the bottle feed opening as well as the drain opening for remnants, so that also any remnants of drinks from the bottles and cans put through the feed opening, could land in the drain channel and from there into the outlet. Thus, the drain channel with outlet works like a draining device for the entire reverse vending machine construction.

Thus, according to the invention, a more reasonable and convenient positioning of the place for pouring out remnants is achieved, while at the same time the front cover of the machine can be hinged for full uncovering of the internal mechanisms of the reverse vending machine, for example for repair or maintenance purposes. Such a constructional solution, in which the front cover has no connection at all to fixtures in the form of pipe systems etc. is advantageous for repairs on the machine construction. The hinges of the front cover may be dual hinges and the front cover may be provided with a lock device.

A non-limiting example of a preferred embodiment will be explained in the following with reference to the accompanying drawings, in which:

Fig. 1 shows a partial view of a wall, into which a reverse vending machine has been installed, represented here by the front cover;
Fig. 2 shows a corresponding split view, in which the same front cover has been pulled straight out from the wall; and

Fig. 3 is a vertical section III-III through the wall and the reverse vending machine on a somewhat larger scale.

In the drawings the reference numeral 10 identifies a wall that has a recess 12, e.g. rectangular, therethrough, Fig. 3, which is slightly smaller than a front cover 14 of plastic included in the reverse vending machine 16, of which the apparatus is known and is essentially contained in a housing 18, of which a front portion extends partly into the recess 12 of the wall 10, a hole 20 corresponding with the feed opening 22 for bottles and cans, of the front cover 14.

The reverse vending machine's 16 bottle- and can-handling equipment and electronics for calculating the return are well known in connection with such reverse vending machines, and are not objects of the present invention, which essentially concerns the front cover 14.

Below the bottle/can feed opening 22 this front cover 14, which is secured to the wall 10 or directly to the housing 18 by means of hinges 24, is provided, according to the invention, with a hole therethrough with an upward open bowl 26 underneath, merging at the rear surface of the front cover 14 into a drain pipe socket 28 at the back. The bowl 26 allows remnants of drinks from bottles and cans to be emptied in the immediate vicinity of the feed opening 22, thereby simplifying the operations, especially when many bottles and/or cans are involved, whereas earlier, with the use of a separate sink, a certain number of bottles first had to be subjected to one type of operation (emptying of remnants),
then the same bottles had to be subjected to the main operation (insertion into the reverse vending machine). Now, each bottle with a remnant can first be emptied and then immediately be inserted into the feed opening 22.

The feed opening 22 has no communication with the internal apparatus 16, 18 of the reverse vending machine. The same applies to the drain pipe socket 28, whose free end opening is open above a fixed, upward open transversal drain channel 30.

The drain channel 30 preferably extends horizontally underneath the internal apparatus 16, 18 of the reverse vending machine, so that any type of liquid from bottles and cans, that might be running down in the area behind the front cover, could land in this drain channel 30, which is connected to a separate outlet 32. It is of advantage that the front cover 14 has no fixed connection to fixtures, pipes, cables etc., so that it can be opened and possibly lifted off its hinges 24 to uncover the internal mechanisms and apparatus of the reverse vending machine after a possible lock device has been unlocked.
C L A I M S

1. A device by a reverse vending machine for bottles and cans, provided with a feed opening (22) accessible from the outside and through which the bottles and cans are inserted into the reverse vending machine (14,16,18), characterized in that the front portion of the reverse vending machine (14, 16,18) in the form of a cover (14) is formed to be secured independently of the internal bottle-/can-handling device and other apparatus (16,18) of the reverse vending machine, the feed opening (22) of the front cover (14), for bottles an cans, being without a fixed connection to pipework etc. within, and that preferably below said feed opening (22) in the front cover (14) is formed an opening (26) therethrough for the emptying of remnants from bottles or cans before their insertion into the reverse vending machine (14,16,18) through the feed opening (22) of the front cover (14), and a corresponding opening (20) positioned within in the internal bottle-/can-handling device of the reverse vending machine.

2. A device according to claim 1, characterized in that the drain opening (26) of the front cover (14), for remnants, is formed in an upwards open bowl, whose opening at the rear side of the front cover (14) ends in a drain pipe socket (28).

3. A device according to claim 2, characterized in that within the front cover (14), below the outlet opening of the drain pipe socket (28) is arranged a preferably upwards open drain channel (30).
4. A device according to claim 3, characterized in that the drain channel (30) has a generally horizontal extent and is connected to an outlet (32).
FIG. 3
A. CLASSIFICATION OF SUBJECT MATTER

IPC7: G07F 7/06
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: G07F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE, DK, FI, NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>DE 29706654 U1 (AMLANG, HEINRICH), 23 October 1997 (23.10.97), fig. 2 and adherent text</td>
<td>1-4</td>
</tr>
<tr>
<td></td>
<td>GB 2263418 A (CHUAN-FU CHIN), 28 July 1993 (28.07.93), page 3, line 21 - line 30, figure 1</td>
<td>1-4</td>
</tr>
<tr>
<td>A</td>
<td>DE 9321439 U1 (HANS-HERMANN TRAUTWEIN SB-TECHNIK GMBH), 4 June 1998 (04.06.98), whole document</td>
<td>1-4</td>
</tr>
</tbody>
</table>

Further documents are listed in the continuation of Box C. See patent family annex.

Date of the actual completion of the international search: 13 July 2000

Date of mailing of the international search report: 26 -07- 2000

Name and mailing address of the ISA:
Swedish Patent Office
Box 5055, S-102 42 STOCKHOLM
Facsimile No. +46 8 666 02 86

Authorized officer:
Inger Lofving / JA A
Telephone No. +46 8 782 25 00

Form PCT/ISA/210 (second sheet) (July 1992)
<table>
<thead>
<tr>
<th>Patent document cited in search report</th>
<th>Publication date</th>
<th>Patent family member(s)</th>
<th>Publication date</th>
</tr>
</thead>
<tbody>
<tr>
<td>DE 29706654 U1</td>
<td>23/10/97</td>
<td>NONE</td>
<td></td>
</tr>
<tr>
<td>GB 2263418 A</td>
<td>28/07/93</td>
<td>EP 0602110 A</td>
<td>22/06/94</td>
</tr>
<tr>
<td>DE 9321439 U1</td>
<td>04/06/98</td>
<td>DE 4318388 A</td>
<td>08/12/94</td>
</tr>
</tbody>
</table>