

(19)



Europäisches Patentamt

European Patent Office

Office européen des brevets



(11)

EP 0 807 909 A2

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:

19.11.1997 Bulletin 1997/47

(51) Int Cl.⁶: **G07F 11/04**

(21) Application number: **97500079.5**

(22) Date of filing: **25.04.1997**

(84) Designated Contracting States:

**AT BE CH DE DK FI FR GB GR IE IT LI LU MC NL
PT SE**

(30) Priority: **17.05.1996 ES 9601107**

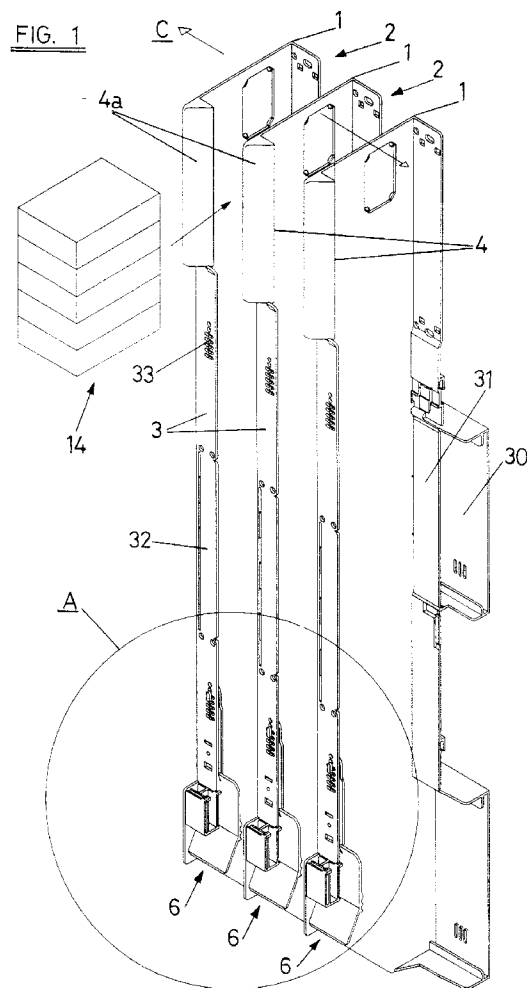
(71) Applicant: **AZKOYEN INDUSTRIAL, S.A.**
E-31350 Peralta (Navarra) (ES)

(72) Inventor: **Arcelus Lecumberri, Lorenzo**
31007 Pamplona (Navarra) (ES)

(74) Representative: **Hernandez Covarrubias, Arturo**
c/o Clarke, Modet & Co.,
Avda. de los Encuartes 21
28760 Tres Cantos (Madrid) (ES)

(54) Magazine for packed product vending machines

(57) A magazine for vending machines of packed products consisting of vertical channels (1) delimiting spaces (2) to contain piles of packets or packages (14). Each channel has fixed on the lower part of its front wall an internal longitudinal supplement (6) that may be adjusted in depth and height, to adjust the exit section height and channel width to different packet sizes.



EP 0 807 909 A2

Description

The present invention refers to a magazine for vending machines of packed products, especially cigarettes, wherein the packets or packages are piled in different columns.

Magazines for cigarette vending machines consist of a series of consecutive vertical channels arranged in the same direction and delimit vertical housings, each one sized to contain a pile of packets of cigarettes. These vertical housings should admit the different sizes of existing packets, adapting to them and should also facilitate the packet filling or loading operation.

Generally, cigarette packet sizes correspond to the different cigarette length and the nature of the box shaping the packet, in this way it being possible for packets of different lengths, widths and heights existing.

The magazines are usually formed by items which as adjustable partitions shape them for different package width.

To facilitate loading operations, the channels limiting the magazine housings usually have in the upper part of their front wall, a notch across which a series of packets may be introduced, perpendicular to the channel. This notch is normally necessary to close it by means of an articulated partition to avoid the packets falling.

If the notch is partial, the loading of the group of packets is performed by rotating them to permit their introduction which makes loading difficult and the number of packets to be loaded.

Solutions exist in which the magazines have no front part for facilitating loading, and the fall of packets being solved by means of a front cover, normally common to several channels, or by means of a closing rod in each channel, which on dropping down permit closing or loading.

Also it is known to have a closing rod in the notch of each channel which should drop down towards the outside to perform the packet loading operation and then, to rotate it to the closing position, which supposes a drawback during replacement phases, when it is desirable to have both hands free to handle the different types of packets to be loaded.

On the other hand, to be able to adapt the channel exits to different packet sizes, the use of supplements which couple in the lower part of the channel is known to obtain, near the exit mouth, a section whose bottom corresponds to the length of the packets contained and whose height adapts to the packet shape, said supplement changing every time the packet size varies. This demand represents a disadvantage for the person loading cigarettes and moreover, obliges that different supplements are available for each product.

The object of this invention is a magazine for vending machines of packaged products, especially cigarette packets, built such that it allows packet loading operations to be carried out simply, without the need to handle

any component or rotate the packets, such that the person loading may have both hands free to handle the packets and eliminate difficult handling operations. Another object of the invention is to obtain a magazine for the mentioned purpose, wherein the cross-section of the housings limited by the channels may be adjusted to different packet sizes without having to change supplements or adapting components.

According to this invention, each channel has in the lower part of its front wall an internal longitudinal supplement that may be adjusted in depth and height in different positions, such that in each one of them a channel cross-section is defined, suited to the sizes of the packets piled in said channel.

The mentioned supplement is comprised of a strip that runs along the front wall of the channel overlapping the lower edge thereof, in a part delimiting the height of the exit section. This strip may be fixed on the front channel wall in different height and depth positions, in this way adjusting to the height of the exit section and the channel width to the different packet sizes.

For hanging the strip, this has in its upper part, as from the surface opposite the front wall of the channel, a gudgeon that may be introduced in holes existing in the mentioned channel wall and located at different heights. Besides, the strip has some sockets in its lower part, that may be coupled on the longitudinal edge of the front channel wall and located at different distances from the strip, such that, according to the socket selected, the strip is located at a different distance from the front channel wall, in this way, different passage cross-sections being defined thereof.

Beneath the mentioned sockets, the strip is finished by a section inclined cross-wise towards the outside, shaping the exit section.

According to another aspect of the invention, the upper longitudinal notch of the front wall of the channels, across which the loading of the spaces limited by said channels is carried out, is equipped with the means to facilitate this loading operation.

The mentioned means consists of an outside ramp that runs along the longitudinal edge of the notch and presents a descending gradient towards the same, such that on introducing the packets and propping them on the ramp, they slip over the same and are led to the entrance notch at the same time they press the channel, provoking their inclination and separation from the consecutive channel, in this way increasing the width of the access opening.

According to another embodiment of the invention, the upper longitudinal notch of the front wall of the channels, reaches the bottom thereof and is partially closed by a notch articulated by its inside edge to the bottom of the channel and able to oscillate between two extreme positions, one for closing, which is at the same level at the front wall of the channel and another of maximum opening, which remains in a sunk position towards the interior of the channel, attached to the internal sur-

face of its bottom thereof. This position permits the free entrance of the packets. The closing position is limited by an external stop and the notch is constantly impelled towards said closing position by means of a spring.

To more easily understand the magazine characteristics of this invention, a more detailed description thereof is made below, with the help of the attached drawings giving an example of non-limiting execution.

In the drawings:

Figure 1 is a perspective of a magazine for vending machines made according to the invention.

Figure 2 is a perspective of one of the channels comprising the magazine in Figure 1.

Figure 3 corresponds to the close view A of figure 1 at a greater scale.

Figure 4 is a perspective of the lower strip mounted on each channel.

Figure 5 is a perspective of a magazine similar to figure 1, showing an alternative embodiment.

Figure 6 corresponds to the close view B of figure 5 at a greater scale.

Figure 7 is a perspective of the upper notch of the channels comprising the magazine in figure 5.

In figure 1, part of a magazine is represented, being comprised of three consecutive vertical channels (1), all of which are orientated in the same direction to delimit vertical housings between them (2), in each one of which there will be a pile of packets that will lean on the lower platform, not shown.

In figure 2, one of these channels (1) is represented in perspective, being mainly composed of metal or plastic and having on the front wall (3) an upper notch (4), across which the loading of packets is performed in the corresponding channel, and a lower notch (5) across which the exit of the packets shall take place, one by one, by means of the corresponding extraction device.

For the exit of the packets to occur properly, the opening or exit space, delimited by notch (5), should be adapted to the different cross-sections of the packets. Likewise, the distance between the channel walls (1) should correspond to the length of the packet.

The conditions explained are achieved according to the invention, by means of the arrangement of a supplement (6) fixed inside the lower part of each one of the front walls (3) of the channels.

This supplement, as may be observed in figure (4), is comprised of a strip (7) which has, along the surface opposite wall (3) of the channel, an upper hanging gudgeon (8), whilst below it is finished in a section (9) inclined towards the front. Along this same surface, the strip (7) includes a structure (10) defined by partitions (11) delimiting together with strip (7), several sockets (12), sized to receive the longitudinal edge of wall (3) of the channel, as from the lower notch (5).

Wall (3) of the channel has holes (13) in its lower part where gudgeon (8) of the strip may be introduced, as shown in figure (3). Depending on the hole (13) selected to fix the strip, the lower section (9) is situated at

a different height, in this way adjusting the size of the exit cross-section to the cross-section of the packets, occupying the corresponding channel. In this way, the exit section of each channel may be adjusted to different thicknesses or cross-sections of the packets.

On the other hand, selecting the notch (12), across which the free edge of wall (3) of the channel will be introduced, as from the inside notch (5), the strip (7) shall be in the lower part situated at a different distance from the wall (3) of the channel, in this way varying the length of the cross-section thereof, to adapt to different packet heights. In the embodiment shown in figure 3, the lower edge of the wall (3) is introduced in the notch (12) nearest to the strip (7), by which the channel will be adapted to the packets with greater length.

Strip (7), together with structure (10), will be preferably made of plastic material.

Greater adjustment possibilities may be achieved in the lower part of the channels, adding to the supplements (6) an auxiliary component (6a), figure 8, defining an additional socket (12a), similar to the sockets (12) of the supplements (6) and permitting a greater reduction of the width of the corresponding vertical housing (2), to adapt it to shorter packets.

With supplement (6) described, the lower part of the channels is adjusted, together with the exit mouth thereof, to the sizes of the packets housed in the corresponding channel.

The upper notch (4), figures 1 and 2, is limited by an external ramp (4a) inclined in a descending direction towards said notch. This ramp is defined by a wall reinforced by rear transverse partitions. On introducing a set of packets (14), figure 1, these having a greater width than the passage cross-section defined between the edge of notch (4) and the bottom of the following channel, said packets will lean against ramp (4a), pushing and transferring the channel to which said ramp belongs in the direction of the arrow C, until allowing the introduction of the packets, to then recover its original position.

The packet loading operation, may be facilitated by totally eliminating wall (3) of each channel along the corresponding notch (4) and fixing on the same a hatch (15) as shown in figure 6 and 7. This hatch (15) which may be metallic, plastic, etc., will be sized to occupy approximately the surface area of the notch (4) and will be articulated by its inside edge to the bottom (16) of the channel, for which the hatch may have on its inner edge tabs (17) equipped with aligned gudgeons (18), that may be introduced across opposite holes formed in springs (19) of the channel bottom (16).

Each hatch (15) will also carry a band (27), figure 7, which will lean internally on a channel bottom (16), impelling said hatch towards a closing position, shown in figure 6, forming an angle of almost 90° with the channel bottom (16).

With the arrangement commented above, when it is necessary to introduce a group of packets, as that rep-

resented in figure 1 and referred to with number (14), it will be sufficient to push the hatches 15 with the same towards the inside of the channel, tab (27) giving way. As soon as the group of packets is introduced in the channel and descends along the same, hatch (15) recovers its closing position shown in figure (6).

To load a machine equipped with a magazine having the features described, firstly, the lower supplement (7) will be adjusted in height and depth, to adapt the lower section of the channels to the length and cross-section of the packets that will occupy it. Then, channel loading will commence, introducing groups of packets which push the upper hatch (15) of each channel, that will recover its closing position once the packets have descended along the channel, without the necessity of the person performing the loading operation to have to handle channels (1) or to directly activate any access hatch or unnecessarily rotate the packets.

The channels (1) forming the magazine of this invention may also serve to house two piles of different packets or packages, on different floors, each one with its corresponding extraction device. For this purpose, according to that shown in figure 1 and 5, the rear wall of the channels forming two equal slots (29) and (30) in each one of which an extraction device may be installed with its corresponding platform to support the packet pile. Slot (30) is closed by a partition (31), easy to dismantle, which is at the same level as the rear wall of the channel. In a position opposite to slot (30) the front wall of the channel has an easily removable area (32), above which there is a set of holes (33) similar to those referred to with number (13).

In the area shown in figure 1, the channels define housings for a single type of packets in each one. By eliminating partition (31) and the part (32) and fixing an extraction device with a support platform in slot (30), two floors are available in each housing, each one of which may contain packets of different features. In the holes (33) there may also be a supplement (6) to adapt to different packet sizes.

Claims

1. A magazine for vending machines of packed products, comprised of a series of consecutive vertical channels (1), orientated in the same direction, delimiting vertical spaces (2) sized for each one to contain a pile of packets or packages (14) and having, as from the upper end of its front wall (3), a partially closed longitudinal notch (4), across which the packets (14) are introduced, characterized in that each one of the channels (1) has fixed on the lower part of their front wall (3) an internal longitudinal supplement (6) adjustable in depth and height, whose supplement (6) consists of a strip (7) running along the front wall (3) overlapping the lower edge thereof in a section limiting the height of the exit sec-

tion and may be fixed on said wall (3) in different positions of height and depth to adjust the height of the exit section and channel width (1) to different packet sizes (14).

2. A magazine according to claim 1, characterized in that the strip mentioned (7) has, as from the surface opposite the front wall (3) of the channel (1), an upper hanging gudgeon (8) and lower sockets (12), that may be coupled on the longitudinal edge of the front wall (3) of the channel (1), being situated at a different distance from the strip (7); said strip (7) being finished, beneath the mentioned sockets (12), in a transverse inclined section (9) towards the front to shape the exit section; and in that the front wall (3) of the channels (1) have in their lower part holes (13) located at different heights to receive the hanging gudgeon (8) of the strip (7).

3. A magazine according to claim 2, characterized in that the lower sockets (12) of the strip (7) are defined by partitions (11) parallel to said strip (7) and located at different distances from the same, delimiting these partitions (11) one to another and with the strip (7), having grooves sized to received the free longitudinal edge of the front wall (3) of the channel (1), fixing different separations between said wall and strip (1).

4. A magazine according to claim 1, characterized in that the upper longitudinal notch (4) of the front wall (3) of the channels (1) is limited by an external longitudinal ramp (4a), inclined towards the interior of said notch (4).

5. A magazine according to claim 1, characterized in that the upper longitudinal notch (4) of the front wall (3) of the channels (1) reaches the bottom (16) of said channels (1) and is closed by a hatch (15) articulated (17, 18, 19) by its internal edge to the channel bottom (1) and may oscillate between a closing position which is approximately at the same level as the front wall (3) of the channel (1), with a slight inclination towards the interior and a position of maximum opening in which it remains attached to the internal surface of the bottom (16) of the channel (1), limiting the closing position by means of stops on the articulation edge and the hatch being constantly impelled towards said closing position by means of a spring.

