Abstract: An assembly for feeding labels and taking up a backing ribbon in a labeling machine for pre-glued labels, comprising a rotating disk (2) for supporting a reel (1) of backing ribbon on which the pre-glued labels are applied, a separator (4) which separates the individual labels from the backing ribbon, with subsequent transfer thereof in application to the individual containers (5, 6) to be labeled, a ribbon traction device (8), a device for taking up the backing ribbon devoid of labels with an associated device (9) for adjusting the rotation rate thereof. The invention is characterized in that the device for taking up the backing ribbon comprises at least two rewinding rollers (10, 11) which are designed to receive the ribbon and are provided with means adapted to cause an alternating operation thereof.

Title: ASSEMBLY FOR FEEDING LABELS AND TAKING UP A BACKING RIBBON IN A LABELING MACHINE FOR PRE-GLUED LABELS


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ASSEMBLY FOR FEEDING LABELS AND TAKING UP A BACKING RIBBON IN A LABELING MACHINE FOR PRE-GLUED LABELS

Technical field

The invention relates to an assembly for feeding labels and taking up a backing ribbon in a labeling machine for pre-glued labels.

Background Art

The very widespread presence of labeling machines is known that perform the application, on containers of all types, of pre-glued labels which are associated with a backing ribbon that is supplied wound on reels so as to be used by the feeding assembly with which such machines are provided. Such an assembly comprises a separator which is situated in the immediate vicinity of the containers to be labeled, which are conveyed by a rotating carousel or by a belt that confers a rectilinear motion to them, and which separates the individual labels from the backing ribbon to apply them on respective containers.

The backing ribbon, now devoid of labels, must naturally be taken up so as to allow a convenient removal thereof, and the takeup devices present in the known art have various forms and among these, a very common implementation provides a roller onto which the backing ribbon is rewound. This implementation however entails rather long idle times during operation, which are necessary for the operator to carry out the maneuvers to remove a reel when it has reached the intended size and to restart operation in order to form a next reel.

Disclosure of the Invention

The aim of the present invention is to devise a labeling machine for pre-glued labels in which the operation of the backing ribbon takeup device occurs with idle times reduced to a minimum, so as to greatly increase the efficiency of the machine.

The set aim is achieved by an assembly for feeding labels and taking up a backing ribbon in a labeling machine for pre-glued labels, according to
the invention, which comprises a rotating disk for supporting a reel of backing ribbon on which the pre-glued labels are applied, a separator which separates the individual labels from the backing ribbon, with subsequent transfer thereof in application to the individual containers to be labeled, a ribbon traction device, a device for taking up the backing ribbon devoid of labels with an associated device for adjusting the rotation rate thereof, characterized in that the device for taking up the backing ribbon comprises at least two rewinding rollers, which are designed to receive said ribbon and provided with means adapted to cause an alternating operation thereof.

Advantageously, the above-mentioned backing ribbon takeup device comprises means adapted to alert an operator during the alternation of the operation of the two rewinding rollers.

**Brief description of the drawings**

Further characteristics and advantages of the invention will become more apparent from the description of two preferred but not exclusive embodiments of the invention, which are illustrated by way of non-limiting example in the accompanying drawings wherein:

Figure 1 is a perspective view of the assembly according to the invention;

Figure 2 is a view of a different embodiment of the assembly according to the invention.

**Ways of carrying out the Invention**

With reference to the above-mentioned Figure 1, the reference numeral 1 designates a reel supported on a rotating disk 2 from which the backing ribbon of pre-glued labels is unwound that are still present, although not shown in the figure, on the portion 3a which arrives, after a series of transmissions, at a separator 4 which separates the individual labels from the backing ribbon in order to apply them to the individual containers to be labeled such as 5 and 6. The containers 5, 6 are conveyed, in the embodiment shown, by the rotating carousel 7, but they could equally well
be handled by a conveyor belt adapted to provide them with a rectilinear motion.

The portion 3b of the backing ribbon, now devoid of labels, leaves the separator 4 and arrives at a traction device 8 and reaches a takeup device which will now be described in detail and the rotation rate of which is regulated by the device designated with 9.

The backing ribbon takeup device comprises at least two rewinding rollers 10 and 11, advantageously provided with associated support platters 10a, 11a, and conveniently provided with means for locking the end of the belt 10b, lib. Each one of the rewinding rollers 10 and 11 is provided with a photocell, not shown in the figure, which is capable of detecting, by reading through a small hole such as 11c in the platter 11a, when the reel of ribbon has reached the intended size during rewinding, and consequently of causing the emission of an alert to the assigned operator.

Lastly, the reference numeral 12 designates a manually actuated selector which is adapted to actuate the alternation of operation of the two rewinding rollers 10 and 11.

The operation of the invention will now be described with reference to the situation shown in Figure 1.

The photocell fitted to the rewinding roller 10 has detected that the reel of ribbon designated with 13 wound on the rewinding roller 10 has reached the maximum intended size, and consequently has commanded the emission of an alert signal to the assigned operator.

The operator, after stopping the machine and cutting the backing ribbon at the tail end 13a, has fixed the cut-off end of the backing ribbon to the rewinding roller 11, has actuated the selector 12 so as to change operation from the rewinding roller 10 to the rewinding roller 11, and has put the machine back in operation thus starting the formation of a reel of ribbon on the rewinding roller 11, designated with 14.

This is exactly the situation shown in Figure 1, which is then followed
by unhurried removal of the reel 13 by the operator, thus leading to a considerable reduction in idle times with respect to the conventional implementation which provides for the presence of only one rewinding roller.

Figure 2 shows a different embodiment of the invention which is provided with an identical assembly for feeding labels, while the assembly for taking up the backing ribbon 3b now devoid of labels, situated downstream of the traction device 8 and provided with the device 9 for adjusting the rotation rate, still features the rewinding rollers 10 and 11 provided with respective photocells that detect reaching of the intended size by the reel of ribbon during winding, but which, differently from the first embodiment described, cause the actuation of the automatic splicing device 15, of a type that is known per se, situated upstream of the rewinding rollers 10, 11.

Now the operation of the above-mentioned different embodiment shall be described, starting with the situation shown in Figure 2 in which the portion 3b of ribbon arrives at the rewinding roller 10 for the formation of the reel 16 which is near to depletion. On the rewinding roller 11, which is stationary, there is a short portion of ribbon 17 fixed at one end to the rewinding roller 11 and at the other end, not visible, inserted in the automatic splicing device 15.

The photocell fitted to the rewinding roller 10 detects the depletion of the reel 16, and actuates the automatic splicer 15 to cut the ribbon 3b and splice it with the portion of ribbon 17 that is present on the rewinding roller 11, in this manner arranging the alternation of operation of the rewinding rollers that occurs with the stopping of the rewinding roller 10 and the starting of the rewinding roller 11.

At this point the operator intervenes, following an alert emitted by the photocell, removing the complete reel 16 from the rewinding roller 10 and placing a short portion corresponding to the portion 17 mentioned
previously on the same rewinding roller 10, and in this manner the continuity of operation of the machine is ensured.

All the characteristics of the invention, indicated above as advantageous, advisable or similar, may also be missing or be substituted by equivalent characteristics.

The individual characteristics set out with reference to general teachings or to specific embodiments may all be present in other embodiments or may substitute characteristics in such embodiments.

The invention described is susceptible of numerous modifications and variations, all of which are within the scope of the appended claims. Moreover, all the details may be substituted with other, technically equivalent elements.

In practice the materials employed, as well as the dimensions and shapes, may be any according to requirements.

The disclosures in Italian Patent Application No. VR2011A000009 from which this application claims priority are incorporated herein by reference.

Where technical features mentioned in any claim are followed by reference signs, those reference signs 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. An assembly for feeding labels and taking up a backing ribbon in a labeling machine for pre-glued labels, comprising a rotating disk (2) for supporting a reel (1) of backing ribbon on which the pre-glued labels are applied, a separator (4) which separates the individual labels from the backing ribbon, with subsequent transfer thereof in application to the individual containers to be labeled (5, 6), a ribbon traction device (8), a device for taking up the backing ribbon devoid of labels with an associated device (9) for adjusting the rotation rate thereof, characterized in that the device for taking up the backing ribbon comprises at least two rewinding rollers (10, 11), which are designed to receive said ribbon and are provided with means adapted to cause an alternating operation thereof.

2. The assembly according to claim 1, characterized in that the backing ribbon takeup device comprises means adapted to alert an operator during the alternation of the operation of the two rewinding rollers (10, 11).

3. The assembly according to claims 1 and 2, characterized in that the backing ribbon takeup device comprises, for each rewinding roller (10, 11), a photocell which is capable of detecting that the reel (13, 14) of ribbon being wound onto the rewinding roller (10, 11) has reached the intended size and of consequently causing the emission of an alert to the assigned operator, a manually actuated selector (12) being provided which is adapted to actuate the alternation of the operation of the two rewinding rollers (10, 11).

4. The assembly according to claims 1 and 2, characterized in that the backing ribbon takeup device comprises, for each rewinding roller (10, 11), a photocell which is capable of detecting that the reel (13, 14) of ribbon being wound onto the rewinding roller (10, 11) has reached the intended size and of consequently causing the actuation of an automatic splicer (15) and the emission of an alert to the assigned operator.
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER

INV. B65C9/Q0 B65C9/18 B65C9/40

ADD.

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)
B65C

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

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category* Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No.

A US 4 417 94Q A (KOSTER HARRY D [US])
29 November 1983 (1983-11-29)
abstract; figure 1

A US 6 619 361 B1 (SWINBURNE STEPHEN [US])
16 September 2003 (2003-09-16)
column 4, line 12 - line 53; figures 1,2

Date of the actual completion of the international search
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* Special categories of cited documents:

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K See patent family annex.
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