

Description

[0001] The present invention relates to an assembly for dispensing labels from a backing tape.

[0002] Many products have their own specific packaging.

[0003] In this case, as a consequence of standards which prescribe the indication of a minimum amount of information for the consumer on each package and in view of the need of the manufacturer to allow to distinguish immediately the products by applying company trademarks and/or names, the need arises to place on the outer surface of the package adhesive labels which bear all or part of this information.

[0004] For the sake of convenience, these labels are generally provided starting from a tape which is constituted by two coupled sheets, one of which is provided with an adhesive surface, the opposite surface bearing the indications. Of course, in this case it is necessary to cut this second sheet in order to obtain the individual labels from it. In cases of particular practical interest, the sheets bear on their surface a sequence of labels which adhere to the sheet by means of adhesive and are already mutually separated.

[0005] All these constructive solutions have the problem linked to the difficulty of separating the labels from the sheet and of picking them up easily in order to be able to apply them to the product.

[0006] Generally, these operations are performed manually (in the cases in which the labels have a particular shape or must be placed on uneven surfaces). In the simpler cases, there are automatic means which separate the labels from the respective backing tape.

[0007] These automatic means, in addition to not being applicable to all types of label, are generally very complicated and expensive (both at purchase and from the standpoint of operating expenses).

[0008] The aim of the present invention is to provide an assembly for dispensing labels from a backing tape which is adapted to manage labels of any shape and size.

[0009] Another object of the present invention is to provide an assembly for dispensing labels from a backing tape which has low manufacturing costs and is relatively simple to provide in practice and safe in application.

[0010] This aim and this and other objects which will become better apparent hereinafter are achieved by the present assembly for dispensing labels from a backing tape, of the type which comprises a first line for conveying the tape in input, a second line for conveying the tape in output, and a distributed plurality of rolling elements for guiding said tape, characterized in that it comprises a plate which is interposed between the input line and the output line and on which said tape can glide in close contact with its mutually opposite faces, said plate being pivoted at its two ends to respective levers, which in turn are pivoted to the fixed frame of the machine that accommodates said assembly, said plate oscillating as a consequence of driving actions imparted even indirectly to

at least one of said levers.

[0011] Further characteristics and advantages of the invention will become better apparent from the following detailed description of a preferred but not exclusive embodiment of an assembly for dispensing labels from a backing tape, illustrated by way of non-limiting example in the accompanying drawings, wherein:

Figure 1 is a simplified diagram of an assembly for dispensing labels from a backing tape;

Figure 2 is a side view of an assembly for dispensing labels from a backing tape;

Figure 3 is a side view of a machine for dispensing label backing tape provided with an assembly for dispensing labels from a backing tape.

[0012] With reference to the figures, the reference numeral 1 generally designates an assembly for dispensing labels from a backing tape.

[0013] The assembly 1 for dispensing labels 2 from a tape 3 is associated generally with machines 4 which are adapted to ensure the support of a reel 5 on which the tape 3 is wound. These machines 4 can be controlled in order to establish tape dispensing speeds which are consistent with the steps of operation of the assembly according to technologies which are known and are not related to the teaching of the present application.

[0014] The assembly 1 comprises a first line 6 for conveying the tape 3 in input and a second line 7 for conveying the tape 3 in output.

[0015] The tape 3, along the tracks 6 and 7, undergoes changes of direction and can be subjected to variations of its tension (a slight difference between the tape dispensing speed and the speeds of the steps of the assembly 1 might form regions in which the tape 3 is loose, possibly compromising operation). For this reason, a plurality of rolling elements 8 for guiding the tape 3 is distributed along the tracks 6 and 7.

[0016] The assembly 1 further comprises a plate 9, which is interposed between the input line 6 and the output line 7; the tape 3 glides on the plate 9 in close contact with its mutually opposite faces, and in practice the plate 9 forms a portion of the path on which the tape 3 is made to glide.

[0017] The tape 3 can glide on the faces of the plate 9 and glides on the faces so as to keep in close contact with them its surface that lies opposite the one that bears the labels 2; the tape 3 reverses its direction of travel around the front edge 9a of the plate 9. The tape 3 is moved away from the upper face of the plate 9 by means of a rolling element 9b, which remains rigidly coupled to the plate 9 when said plate is moving.

[0018] It should be noted that according to an embodiment of particular practical interest, the adhesive labels 2 are arranged on the tape 3 in mutual alignment along the longitudinal direction of the tape 3 and are already mutually separated.

[0019] The plate 9 is pivoted at its two ends to respec-

tive levers 10, which in turn are pivoted at a fulcrum 11 to a fixed frame 12 of the machine 4 that accommodates the assembly 1: the association of the plate 9 with the levers 10 by means of rotating connections (hinges) and the ability to orient the levers 10 with respect to the fixed frame allow the plate 9 to oscillate; this usually occurs as a consequence of actuations which are imparted even indirectly to at least one of the levers 10.

[0020] According to a particular embodiment, at least one of the levers 10 is rigidly coupled to the movable element of an appropriate actuator 13: the translational movements of the movable element of the actuator 13 entail rotations of the corresponding lever 10 about its own fulcrum 11 for pivoting to the fixed frame 12, with consequent oscillations of the plate 9 (substantially, the levers 10 and the plate 9 constitute an articulated parallelogram and a movement imparted to one of its sides necessarily also affects the others).

[0021] During the oscillations of the plate 9, the rolling element 9b compensates the reduction or increase in the length of the path of the tape 3, keeping said tape slightly tensioned and ensuring that the tape 3 remains in close contact with the faces of the plate 9.

[0022] The front edge 9a of the plate 9 consists of a substantial reduction in thickness with respect to the rest of the plate 9 and its end front has a blending between the upper face and the lower face.

[0023] The supply of the labels 2 from the backing tape 3 provides for the arrangement of the tape 3 along the respective conveyance tracks 6 and 7 and on the respective plate 9 with the portion (surface of the tape 3) that accommodates the labels 2 directed outward.

[0024] By way of the machine 4 it is therefore possible to start the dispensing of the tape 3 along the tracks 6 and 7 and along the plate 9. In this situation, the placement of the tape 3 is ensured by the rolling guiding elements 8.

[0025] When the front side of the label 2 provided on the tape 3 is aligned with the end front of the edge 9a where the two faces of the plate 9 are blended, the actuator 13 is actuated in order to retract the plate 9 as a consequence of the rotation of the lever 10. In practice, the stroke of the plate 9, obtained automatically by means of the actuator 13, is independent of the delivery speed of the tape 3 and depends instead on the size of each individual label 2.

[0026] The reversal of the direction of motion of the tape at the end front of the edge 9a, combined with the backward movement of the plate 9, forces the label 2 (which lies along said front and is directed outward while the internal surface of the tape 3 is in close contact with said front) to separate from the tape 3 and protrude from said front (in practice, the label 2 separates almost completely, keeping in contact with the tape 3 only its rear end) and to be arranged in a configuration 2a which is adapted for simple removal.

[0027] In order to ensure optimum operation of the assembly, it is important for the movable element of the

actuator 13 to have oscillations along a maximum stroke which correspond to small translational motions of the plate 9.

[0028] In particular, it can be seen that the plate 9 oscillates from a forward configuration to a retracted configuration, which correspond to a movement along the plane that contains the plate 9 which is substantially not greater than the distance between two corresponding sides of successive labels 2 on the tape 3. Owing to the small extent of the movements involved (both as regards the angular movements of the levers 10 and as regards the oscillations of the plate 9), the oscillations can be approximated by means of substantially rectilinear translational motions along the plane that contains the plate 9.

[0029] It has thus been shown that the invention achieves the intended aim and objects.

[0030] The invention thus conceived is susceptible of numerous modifications and variations, all of which are within the scope of the appended claims.

[0031] It should in fact be noted that the labels 2 provided on the tape 3 can be constituted by a single adhesive sheet on the outer surface of which all the information of each label 2 is repeated sequentially.

[0032] In this case, upstream of the assembly 1 it is necessary to arrange a cutting unit intended to separate each label 2 from the next one in order to allow the assembly 1 to work as described.

[0033] All the details may further be replaced with other technically equivalent ones.

[0034] In the exemplary embodiments shown, individual characteristics, given in relation to specific examples, may actually be interchanged with other different characteristics that exist in other exemplary embodiments.

[0035] Moreover, it is noted that anything found to be already known during the patenting process is understood not to be claimed and to be the subject of a disclaimer.

[0036] In practice, the materials used, as well as the shapes and the dimensions, may be any according to requirements without thereby abandoning the scope of the protection of the appended claims.

[0037] 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 dispensing labels (2) from a backing tape (3), of the type which comprises a first line (6) for conveying the tape (3) in input, a second line (7) for conveying the tape (3) in output, and a distributed plurality of rolling elements (8) for guiding and tensioning said tape (3), **characterized in that** it com-

- prises a plate (9) which is interposed between the input line (6) and the output line (7) and on which said tape (3) can glide in close contact with its mutually opposite faces, said plate (9) being pivoted at its two ends to respective levers (10), which in turn are pivoted to the fixed frame of the machine (4) that accommodates said assembly (1), said plate (9) oscillating as a consequence of actuations imparted even indirectly to at least one of said levers (10).
2. The assembly according to claim 1, **characterized in that** said tape (3) can glide on the faces of said plate (9) in contact with its opposite surface with respect to the one that bears said labels (2) and reversing its direction of travel around the front edge (9a) of the plate (9).
 3. The assembly according to claim 1, **characterized in that** said adhesive labels (2) are arranged on the tape (3) in mutual alignment along the longitudinal direction of said tape (3).
 4. The assembly according to claims 1 and 2, **characterized in that** said front edge (9a) of said plate (9) consists of a substantial reduction in thickness with respect to the rest of the plate (9) and its end front has a blending portion between the upper face and the lower face with a small radius of curvature.
 5. The assembly according to claim 1, **characterized in that** at least one of said levers (10) is rigidly coupled to the movable element of an actuator (13), the translational motions of the movable element of said actuator (13) entailing rotations of said lever (10) about its own fulcrum (11) for pivoting to the fixed frame (12), with consequent oscillations of the plate (9).
 6. The assembly according to claim 1, **characterized in that** said labels (2) on said tape (3) are constituted by a single continuous sheet, a cutting unit being provided upstream of said assembly (1) in order to mutually separate said labels (2).
 7. A method for supplying labels from a collecting tape, according to one or more of the preceding claims, comprising the steps of:
 - arranging said tape (3) along the respective conveyance tracks (6, 7) and on the respective plate (9) so that the portion that accommodates the labels (2) is directed outward;
 - starting a motor for moving the tape (3) along said tracks (6, 7) and said plate (9), its positioning being ensured by rolling guiding and tensioning elements (8);
 - actuating said actuator (13), at the alignment of the initial side of a label (2) provided on said tape (3) with the end front of the blending edge (9a) of said plate (9) so as to retract said plate (9) as a consequence of the rotation of said lever (10);
 - following the retraction of the plate (9), the traction of the tape (3) and the small radius of curvature of the end front of the blending edge (9a) of the plate (9), said label (2) separates at least partially from said tape (3), protruding radially from said front, in a configuration suitable for simple removal by way of grip means.
 8. The method according to claim 7, **characterized in that** the movable element of said actuator (13) can move along a maximum stroke which corresponds to small translational motions of said plate (9).
 9. The method according to claim 8, **characterized in that** said plate (9) can oscillate from an advanced configuration to a retracted configuration, which correspond to a movement along the plane that contains said plate (9) which substantially does not exceed the distance between two corresponding sides of successive labels (2) on said tape (3).
 10. The method according to one or more of the preceding claims, **characterized in that** since the movement of the plate (9) is small, the oscillations can be approximated by means of translational motions along the plane that contains said plate (9).

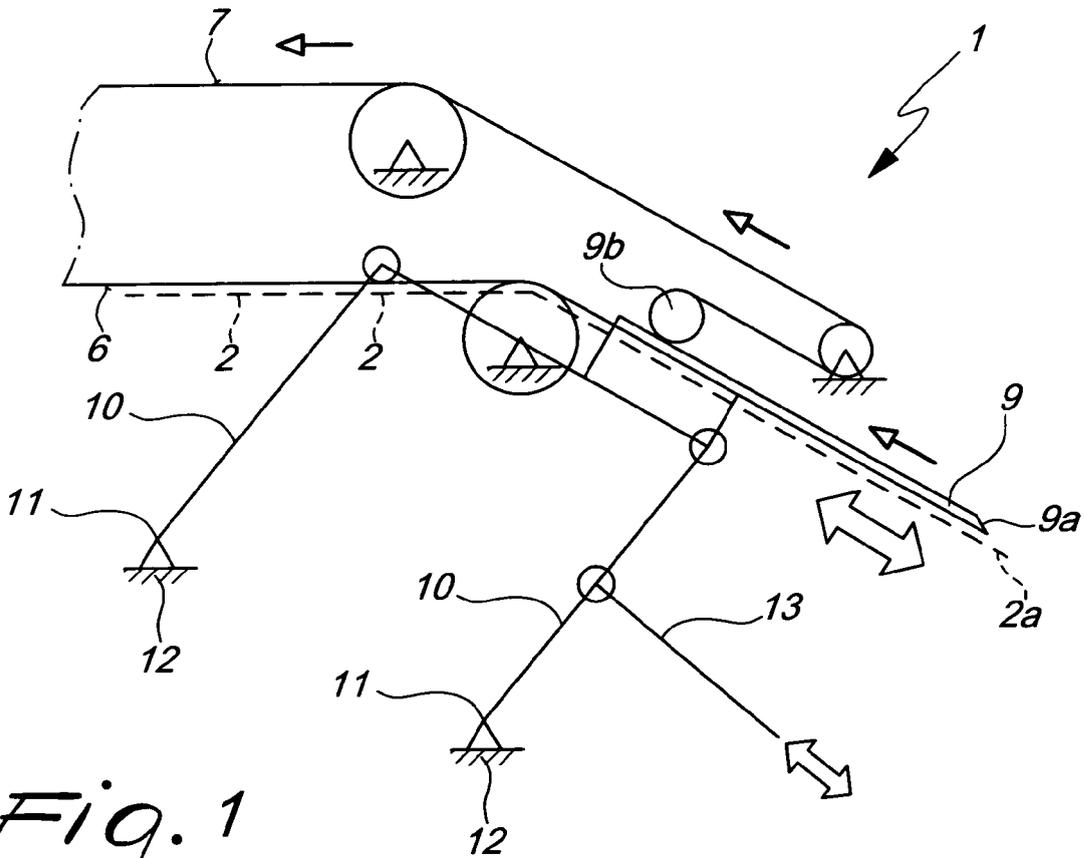


Fig. 1

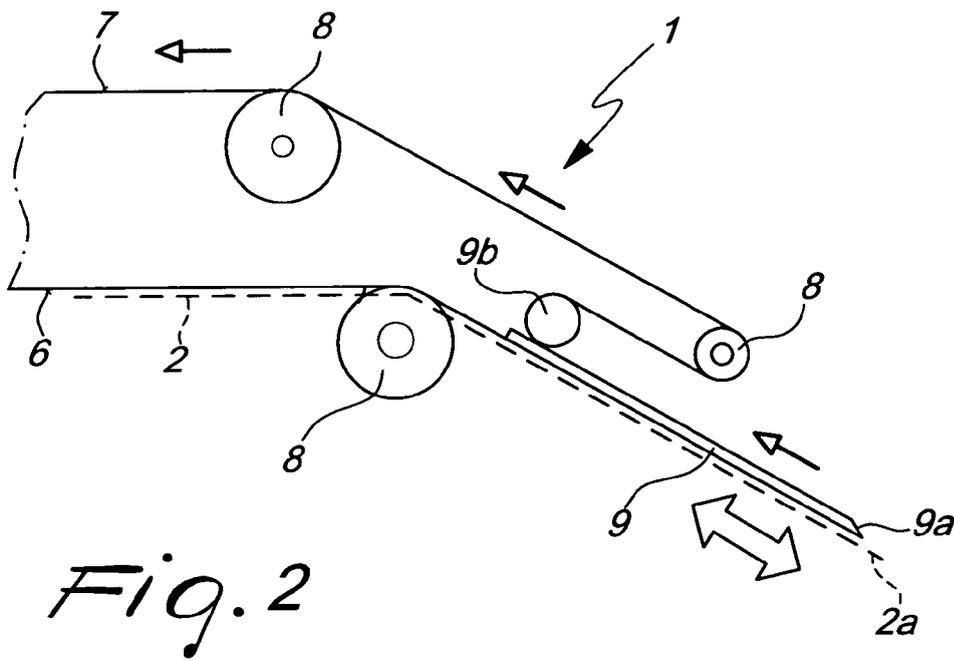


Fig. 2

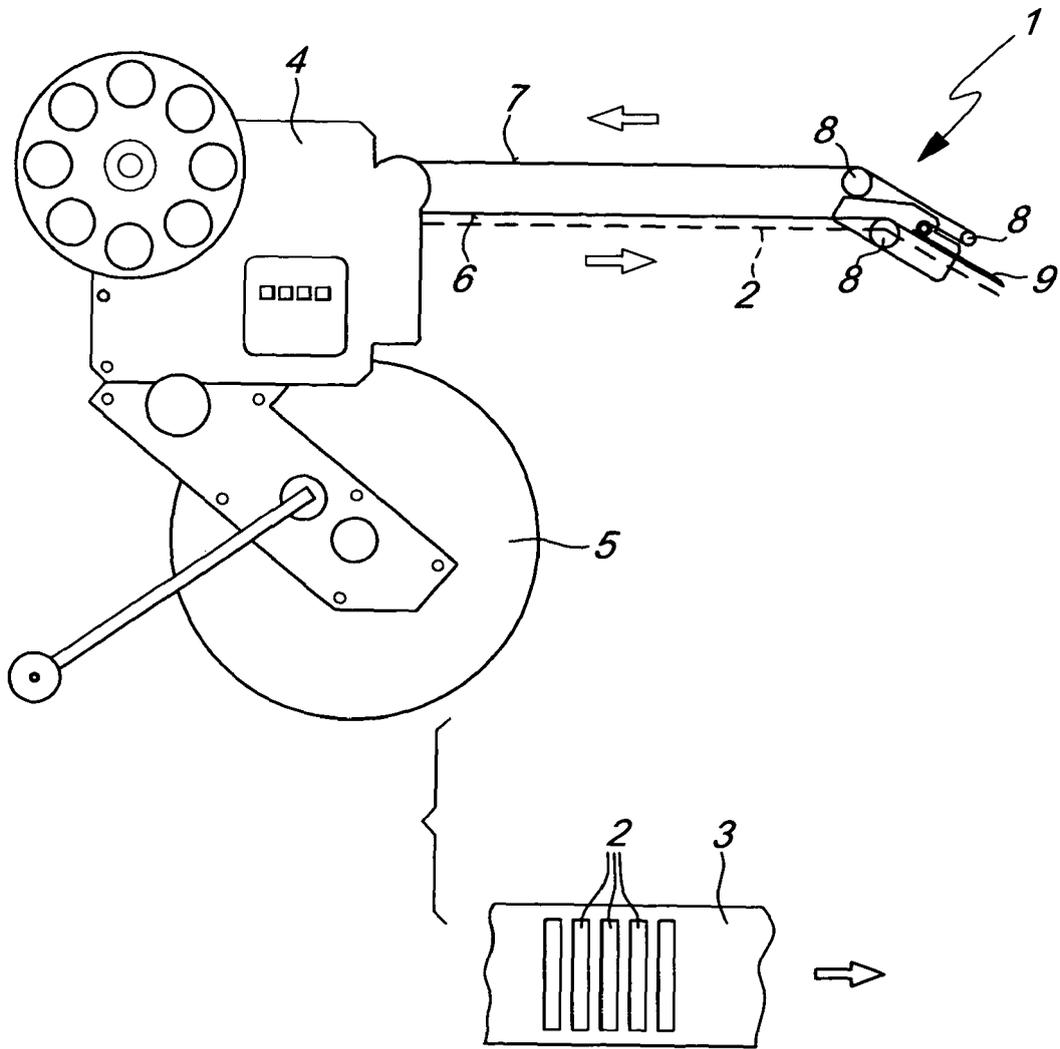


Fig. 3



DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	EP 0 541 378 A1 (AUTOMATED PACKAGING SYST INC [US]) 12 May 1993 (1993-05-12) * abstract; figures 1-5 * -----	1	INV. B65C9/00
A	FR 2 797 250 A1 (LIBRE JEAN PIERRE [FR]) 9 February 2001 (2001-02-09) * abstract; figures 1-3 * -----	1	
A	DE 37 33 511 A1 (SCHLAFHORST & CO W [DE]) 13 April 1989 (1989-04-13) -----		
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			B65C
Place of search		Date of completion of the search	Examiner
The Hague		19 January 2007	Wartenhorst, Frank
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

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

EP 06 42 5619

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 The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

19-01-2007

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0541378	A1	12-05-1993	AT 147344 T 15-01-1997
			CA 2082082 A1 06-05-1993
			DE 69216556 D1 20-02-1997
			US 5304264 A 19-04-1994

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DE 3733511	A1	13-04-1989	NONE

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82