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Description

This invention is concerned with labels for application to products generally but especially to cans and bottles.

Labels have previously been proposed that have a pressure sensitive adhesive layer on one side thereof, the layer being protected, prior to application of the label to a product, by a backing sheet. Such labels have proved popular despite the complication and waste inherent in the use of the backing sheet.

It is an object of the present invention to provide a method of making labels that have a pressure sensitive adhesive layer, that do not require a backing layer and that are in a form enabling them to be simply applied to a product and methods and apparatus for applying such labels to articles.

According to the present invention there is provided a method of making a block of labels from a continuous label stock having a front face on which the labels are printed, a release coating on the front face and a pressure sensitive adhesive coating on the rear face thereof, the method comprising using a hollow die to cut labels in succession from the label stock such that each label when cut enters the die and pushes previously cut labels further into the die, and removing from the die the block of superimposed labels, adjacent labels having an adhesive coating contacting a release coating.

The present invention further provides a method of applying to articles of circular cross-section labels from a block (22) of labels comprising superimposed labels each having a pressure sensitive adhesive coating (17) on the back face thereof and a release coating (16) on the front face thereof, the adhesive coating overlying the release coating of the adjacent label, the method comprising locating the block (22) of labels to project laterally into a line of articles (30) for engagement with the peripheral surfaces of the articles, the adhesive surface (17) of the end label adjacent the line being exposed, and rolling the articles past the block of labels so that each article engages the exposed adhesive layer of the end label and peels that label off the block to expose the adhesive layer of the next label to the next article.

The present invention additionally provides apparatus for applying to articles (30) of circular cross-section labels from a block (22) of labels comprising superimposed labels each having a pressure sensitive adhesive coating (17) on the back face thereof and a release coating (16) on the front face thereof, the adhesive coating overlying the release coating of the adjacent label, the apparatus comprising a guide (32) spaced from one flight (37) of a continuous belt (36) to define therewith a feed path in which the articles are engaged between the guide and the belt, means (39) for driving the flight of the belt in a feed direction to roll the articles along the guide, and a label holder (38) for feeding the block (22) of labels laterally into the feed path so that the adhesive coatings on the labels are presented in succession to the peripheral surfaces of successive articles as they pass the label holder.

A further method of applying labels is provided as specified in claim 5.

An embodiment of the present invention will now be described, by way of example, with reference to the accompanying drawings, in which:

Fig. 1 diagrammatically illustrates one stage in the manufacture of blocks of labels according to the present invention; and

Fig. 2 diagrammatically illustrates the application of labels according to the present invention to containers of circular cross-section.

Fig. 1 diagrammatically illustrates the formation of blocks of label 10 from a continuous label stock (12). The continuous stock (12) may be performed by a series of conventional, in-line operations in which the label base material is firstly printed with the label design on its front face, and then presented for the application thereto of a release coating on its front face and a pressure sensitive adhesive coating to its rear face, the application of the coatings being associated with respective curing operations if necessary. By suitable choice of adhesive and release coatings the precise method by which the continuous stock 12 is produced may be varied, but essentially the stock 12, when it reaches the last process stage illustrated in Fig. 1, comprises a base 15 on which the labels are printed and having a release coating 16 on its front face and a pressure sensitive adhesive coating 17 on its rear face. While the stock is shown face down in Fig. 1, it could equally well be face up.

As shown in Fig. 1 the continuous stock 12 is passed to a die cutting station in which a number, in this embodiment two, of hollow dies 20 are actuated to co-operate with a cutting base 21 to cut the printed labels from the stock 12, operation of the dies being registered with the position of the labels by suitable means, in this embodiment a light scanning device 23 viewing the labels on the incoming stock 12.

As each label is cut by a die 20, it enters the die and pushes further into the die the label previously cut by the die so that a stack 22 of labels is built up in the die. As the adhesive coating 17 on the rear face of each label adheres slightly to the release coating 16 on the front face of the previously cut label, the stack 22 of labels can be removed from the die as a unitary block which greatly facilitates subsequent handling and is advantageous in simplifying the subsequent application of the labels to the appropriate goods as it dispenses with the unrolling, cutting, and individual label handling operations associated with the application of labels from reels. It may be desirable to protect the exposed adhesive layer at the end of the stack by means of a release liner during handling and transport.

Referring now to Fig. 2, there is illustrated one method of applying to containers of circular cross-section, such as cans or bottles, labels from a block 22 of labels. The containers 30, seen in Fig. 2 in plan view, are fed towards the labelling station 35 between guide rails 31 and 32, one guide rail 31 being replaced in the vicinity of the station 35 by a continuous rubber belt 36 entrained round drive/pulley

wheels or rollers and which is driven so that its inner flight 37, which engages the containers 30, is moving in the direction of feed. The belt 36 is driven by a motor 39. The spacing between the inner flight 37 of the belt 36 and the guide rail 32 is such that the containers 30 are trapped between the belt and the rail and are thus forced to roll on the guide rail 32 past the labelling station 35. At the labelling station 35 is a label holder or magazine comprising a hollow guide 38 in which a label block 22 is downwardly biased.

The guide supports the block 22 so that it projects laterally into the feed path and exposes the adhesive layer on the first label to the periphery of the next container. Thus as each container 30 rolls past the end of the magazine it engages the adhesive layer of the label at the end of the block and, as the adhesion of adhesive layer to the container greatly exceeds the adhesion of the release layer to the adhesive layer of the next label in the block, peels the end label from the block and leaves the labelling station with its label correctly in position.

In a modification of the method illustrated in Fig. 2, the block 22 is inverted so that it is the release coating of each label that is in turn exposed at the end of the guide 38. In this case a fixed vacuum roller beneath the guide 38 peels the labels in succession from the block and deposits them, adhesive side down, on articles passing the roller on the other side of the roller from the guide 38, the velocity of the articles passing the roller matching the peripheral velocity of the roller as it contacts the articles. This method has the advantage that it can apply labels to non-circular articles.

Thus, by using the block of labels it is possible to achieve very high labelling speeds with very simple equipment compared with conventional labelling methods.

Clearly modifications may be made to the embodiment described. For example, the belt 36 could be made of a material other than rubber provided only that it is biased into engagement with the containers 30.

Claims

1. A method of making a block of labels from a continuous label stock having a front face on which the labels are printed, a release coating (16) on the front face and a pressure sensitive adhesive coating (17) on the rear face thereof, the method comprising using a hollow die (20) to cut labels in succession from the label stock (12) such that each label when cut enters the die and pushes the previously cut labels further into the die, and removing from the die the block (22) of superimposed labels, adjacent labels having an adhesive coating contacting a release coating.

2. A method as claimed in claim 1, in which the die (20) cuts the label stock (12) from the rear face through to the front face thereof.

3. A method of applying to articles of circular cross-section labels from a block (22) of labels comprising superimposed labels each having a pressure sensitive adhesive coating (17) on the back

face thereof and a release coating (16) on the front face thereof, the adhesive coating overlying the release coating of the adjacent label, the method comprising locating the block (22) of labels to project laterally into a line of articles (30) for engagement with the peripheral surfaces of the articles, the adhesive surface (17) of the end label adjacent the line being exposed, and rolling the articles past the block of labels so that each article engages the exposed adhesive layer of the end label and peels that label off the block to expose the adhesive layer of the next label to the next article.

4. Apparatus for applying to articles (30) of circular cross-section labels from a block (22) of labels comprising superimposed labels each having a pressure sensitive adhesive coating (17) on the back face thereof and a release coating (16) on the front face thereof, the adhesive coating overlying the release coating of the adjacent label, the apparatus comprising a guide (32) spaced from one flight (37) of a continuous belt (36) to define therewith a feed path in which the articles are engaged between the guide and the belt, means (39) for driving the flight of the belt in a feed direction to roll the articles along the guide, and a label holder (38) for feeding the block (22) of labels laterally into the feed path so that the adhesive coatings on the labels are presented in succession to the peripheral surfaces of successive articles as they pass the label holder.

5. A method of applying to articles labels from a block (22) of labels comprising superimposed labels each having a pressure sensitive adhesive coating (17) on the back face thereof and a release coating (16) on the front face thereof, the adhesive coating overlying the release coating of the adjacent label, the method comprising providing a suction roller, locating said block (22) of labels such that the release coating (16) of the end label of the block engages the periphery of the roller, rotating the roller and applying suction thereto to peel the end label from the rest of the block, and passing articles (30) past the roller to receive from the roller respective successive labels.

Revendications

1. Procédé de fabrication d'un bloc d'étiquettes à partir d'une bande d'étiquettes continue présentant une face antérieure sur laquelle sont imprimées les étiquettes, un revêtement facilitant la séparation (16) sur la face antérieure et un revêtement adhésif (17) sensible à la pression, sur la face postérieure de cette bande, caractérisé en ce qu'on utilise une matrice creuse (20) pour découper les étiquettes, successivement les unes après les autres à partir de la bande d'étiquettes (12) de telle façon chaque étiquette, une fois découpée, pénètre dans la matrice et repousse davantage vers l'intérieur de la matrice les étiquettes précédemment découpées, et on extrait de la matrice le bloc (22) d'étiquettes superposées, des étiquettes adjacentes ayant un revêtement adhésif en contact avec un revêtement facilitant la séparation.

2. Procédé suivant la revendication 1 caractérisé

en ce que la matrice (20) effectue le découpage de la bande d'étiquettes (21) à partir de sa face postérieure et en direction de sa face antérieure.

3. Procédé pour appliquer, à des articles de section droite circulaire, des étiquettes provenant d'un bloc d'étiquettes (22) comprenant des étiquettes superposées dont chacune porte un revêtement adhésif (17) sensible à la pression, sur sa face postérieure, et un revêtement facilitant la séparation (16) sur sa face antérieure, le revêtement adhésif surmontant le revêtement facilitant la séparation de l'étiquette adjacente, caractérisé en ce qu'on place le bloc d'étiquettes (22) de manière qu'il fasse saillie latéralement dans une ligne d'articles (30), de manière à venir en contact avec les surfaces périphériques des articles, la surface adhésive (17) de l'étiquette extrême qui est adjacente à la ligne d'articles, étant exposée, et on fait rouler les articles, passant en regard du bloc d'étiquettes, de telle façon que chaque article vienne en contact avec le revêtement adhésif exposé de l'étiquette extrême et pèle cette étiquette à partir du bloc afin d'exposer le revêtement adhésif de l'étiquette suivante en direction de l'article suivant.

4. Appareil pour appliquer, à des articles (30) de section droite circulaire, des étiquettes provenant d'un bloc d'étiquettes (22) comprenant des étiquettes superposées dont chacune porte un revêtement adhésif (17) sensible à la pression, sur sa face postérieure, et un revêtement facilitant la séparation (16) sur sa face antérieure, le revêtement adhésif surmontant le revêtement facilitant la séparation de l'étiquette adjacente, caractérisé en ce qu'il comprend un guide (32) espacé par rapport à un brin (37) d'une courroie continue (36), afin de définir entre eux un trajet d'alimentation dans lequel les articles sont engagés entre le guide et la courroie, des moyens (39) pour entraîner le brin de la courroie dans une direction d'alimentation afin de faire rouler les articles le long du guide et un porte-étiquettes (38) pour alimenter le bloc d'étiquettes (22) latéralement dans le trajet d'alimentation de telle façon que les revêtements adhésifs sur les étiquettes soient présentés successivement aux surfaces périphériques des articles successifs tandis que ceux-ci passent en regard du porte-étiquettes.

5. Procédé pour appliquer, à des articles, des étiquettes provenant d'un bloc d'étiquettes (22) comprenant des étiquettes superposées caractérisé en ce qu'on prévoit un rouleau aspirant, on dispose un bloc d'étiquettes (22), tel que revendiqué dans la revendication 1, de telle façon que le revêtement facilitant la séparation (16) de l'étiquette extrême du bloc vienne en contact avec la périphérie du rouleau aspirant, on fait tourner le rouleau et on applique une dépression à celui-ci de manière à peler l'étiquette extrême à partir du reste du bloc, et on fait passer les articles (30) en regard du rouleau afin de recevoir de ce rouleau des étiquettes successives respectives.

Patentansprüche

1. Ein Verfahren zur Herstellung eines Stapels von Etiketten aus einem gleichförmigen Etikettenma-

terial mit einer Vorderseite, auf der die Etiketten bedruckt sind, einer Trennschicht (16) auf der Vorderseite und einer druckempfindlichen Klebeschicht (17) auf dessen Rückseite, wobei das Verfahren folgende Schritte aufweist: Verwendung eines hohlen Stempels (20), um Etiketten in Folge aus dem Etikettenmaterial (12) herauszuschneiden, so daß jedes Etikett, wenn geschnitten, in den Stempel gelangt und die zuvor herausgeschnittenen Etiketten weiter in den Stempel drückt, und Beseitigung des Stapels (22) von übereinanderliegenden Etiketten aus dem Stempel, wobei benachbarte Etiketten mit ihrer Klebeschicht eine Trennschicht berühren.

2. Ein Verfahren nach Anspruch 1, bei welchem der Stempel (20) das Etikettenmaterial (12) von der Rückseite durch dessen Vorderseite zerschneidet.

3. Ein Verfahren zum Aufbringen von Etiketten aus einem Stapel (22) von Etiketten mit übereinanderliegenden Etiketten auf im Querschnitt kreisförmige Gegenstände, wobei jedes Etikett eine druckempfindliche Klebeschicht (17) auf seiner Rückseite und eine Trennschicht (16) auf seiner Vorderseite besitzt, wobei die Klebeschicht über der Trennschicht des benachbarten Etikettes liegt, wobei das Verfahren folgende Schritte aufweist: Anordnung des Stapels (22) von Etiketten, um seitlich in eine Linie von Gegenständen (30) für den Eingriff mit den Umfangsflächen der Gegenstände hineinzuragen, wobei die Klebefläche (17) des End-Etikettes benachbart zur Linie freiliegt, und Abrollen der Gegenstände entlang des Stapels von Etiketten, so daß jeder Gegenstand mit der freiliegenden Klebeschicht des End-Etikettes in Eingriff gelangt und dieses Etikett vom Stapel abnimmt, um die Klebeschicht des nächsten Etikettes für den nächsten Gegenstand freizulegen.

4. Vorrichtung zum Aufbringen von Etiketten aus einem Stapel (22) von Etiketten mit übereinanderliegenden Etiketten auf im Querschnitt kreisförmige Gegenstände (30), wobei jedes Etikett eine druckempfindliche Klebeschicht (17) auf seiner Rückseite und eine Trennschicht (16) auf seiner Vorderseite besitzt, wobei die Klebeschicht über der Trennschicht des benachbarten Etikettes liegt, wobei die Vorrichtung aufweist: eine Führung (32), die im Abstand zu einer Bahn (37) eines Endlosriemens (36) angeordnet ist, um einen Vorschubweg zu bilden, in dem die Gegenstände in Eingriff zwischen der Führung und dem Riemen gebracht werden, Mittel (39) zum Antrieb der Bahn des Riemens in Vorschubrichtung, um die Gegenstände entlang der Führung zu rollen, und einen Etikettenhalter (38) zur Zuführung des Stapels (22) von Etiketten seitlich in den Vorschubweg, so daß die Klebeschichten der Etiketten der Reihe nach den Umfangsflächen der aufeinanderfolgenden Gegenstände dargeboten werden, wenn sie den Etikettenhalter passieren.

5. Ein Verfahren zum Aufbringen von Etiketten aus einem Stapel (22) von Etiketten mit übereinanderliegenden Etiketten auf Gegenstände, welches folgende Schritte aufweist, Anordnung einer Saugwalze, Anordnung eines Stapels (22) von Etiketten nach Anspruch 1, so daß die Trennschicht (16) des End-Etikettes des Stapels mit dem Umfang der Walze in Eingriff gelangt, Rotation der Walze und Auf-

bau eines Saugdruckes, um das End-Etikett vom übrigen Teil des Stapels abzulösen, und Vorbeiführung der Gegenstände an der Walze, um von der Walze die entsprechenden, aufeinanderfolgenden Etiketten zu erhalten.

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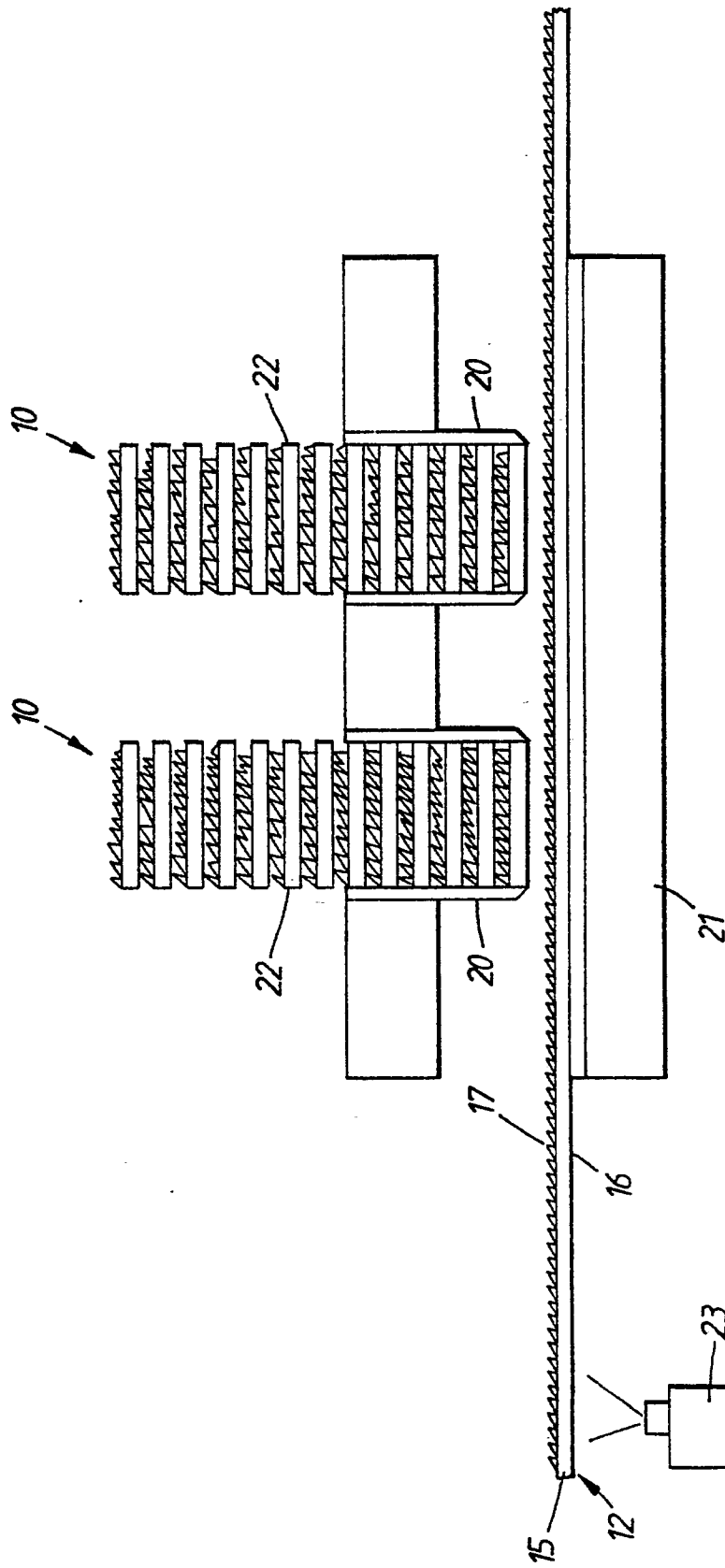


FIG. 1.

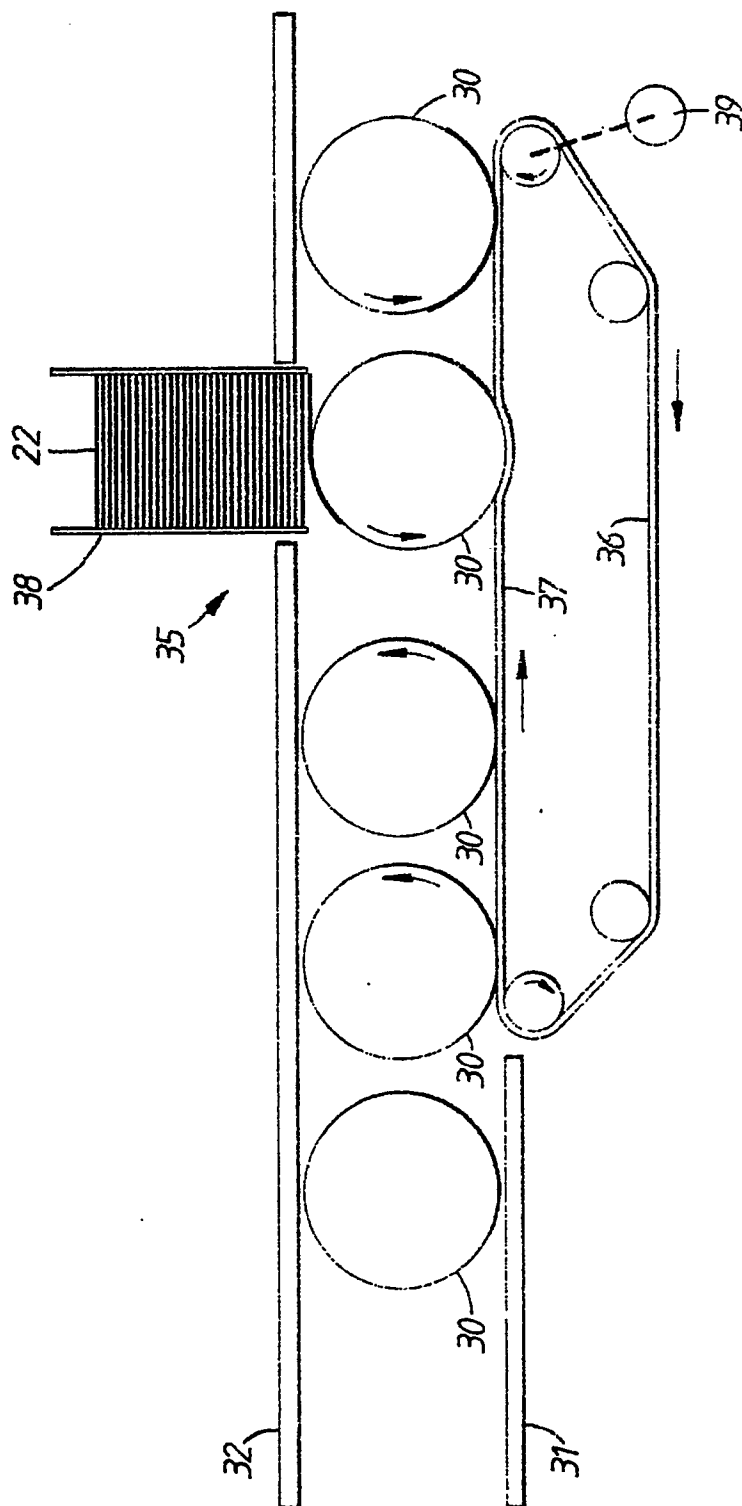


FIG. 2.