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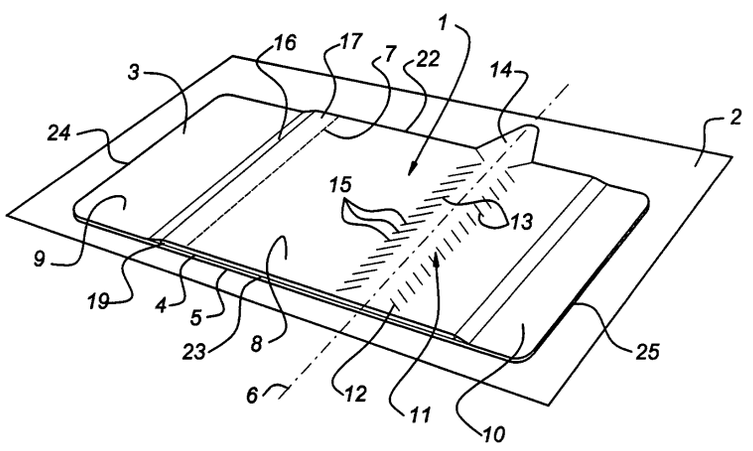
(54) Label with reinforcement layer

(57) The invention relates to a label (1), comprising a layer of label material (3) with two longitudinal edges (22, 23) and two side edges (24, 25), with two tear lines (13, 7) situated at a distance from each other and extending transversely to the longitudinal edges (22, 23) between the latter, and at an underside of said label material having a layer of adhesive, and also comprising a protective layer (4) lying with a first side (4') against the adhesive layer and detachable therefrom, which protective layer does not have great adhesive strength on a second side (4") lying opposite the first side (4'), and an adhesive surface (9, 10) being present between the side edges (24, 25) and a respective adjacent tear line (13, 7), said adhesive surface having relatively great adhesive strength for connection to a substrate, while the protective layer (4) does not extend over the adhesive surfaces (9, 10) on connection to a substrate, in which label a reinforcement layer (5) extends between the adhesive surfaces (9, 10) and over the protective layer (4), which reinforcement layer with a first side (5') is detachable from the second side (4") of the protective layer (4) and at the position of the adhesive surfaces (9, 10) is immovably connected to the layer of label material (3), and with a second side (5") is connectable with relatively great adhesive strength to a substrate. The label preferably comprises a tear-off strip which is suitable for removal when the label is stuck on a cylindrical container, for example a medicine bottle, an ampoule or a hypodermic syringe. An advantage of the present invention is that the labels do not crease during the labelling and that high labelling speeds can be achieved.

Fig 2



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Description

[0001] The invention relates to a label, comprising a layer of label material with two longitudinal edges and two side edges, with two tear lines situated at a distance from each other and extending transversely to the longitudinal edges between the latter, and at an underside of said label material having a layer of adhesive, and also comprising a protective layer lying with a first side against the adhesive layer and detachable therefrom, which protective layer does not have great adhesive strength on a second side lying opposite the first side, and an adhesive surface being present between the side edges and a respective adjacent tear line, said adhesive surface having relatively great adhesive strength for connection to a substrate, while the protective layer does not extend over the adhesive surfaces on connection to a substrate.

[0002] Such labels are known from EP-B-0,140,420, in the name of the applicant. This publication discloses a web of labels with a number of self-adhesive labels situated spaced apart on a carrier web. The labels are each provided with a transverse perforation, permitting them to be divided into two parts. After being detached from the carrier web, the labels can be affixed on and adhere to a medicine bottle, a test tube, an ampoule and the like. The protective layer material lying underneath a central label part is detached with the label material from the carrier web. On placing of the label material and the protective layer underneath it on a container the central part of the label material does not adhere to the container, owing to the presence of the protective layer material. The central part of each label is designed to be torn off along the perforation together with the protective layer underneath it, and to be detached from the container. The label material of the detached central part can subsequently be removed from the protective layer underneath it and stuck on, for example, a patient card or on another substrate.

[0003] It is a disadvantage of the labels according to the prior art that when the label material is being applied to a container at high speed the label material slips on the pressure rollers of the machine applying the label material. During the infeed of the labels into the nip between a cylindrical container and a rotating pressure roller driving the container and making it rotate, the central label part, which is provided with the adhesive protective layer with little or no adhesive strength, can slip on the roller. As a result of the slippage, the label material can acquire creases or folds, so that the label material is not applied correctly to the container, or it may be positioned with its central part bulging out from the container.

[0004] It is an object of the present invention to provide a label of the type described in the preamble, which label is suitable for mechanical affixing on containers at high speed, resting tightly against the container, without creasing. It is a further object of the present invention to provide a label which after being affixed on a first substrate releases a central part of the label material in a simple manner, which central part can be affixed on another substrate, such as a patient status card or something of that kind.

[0005] The object of this invention is achieved by the fact that a reinforcement layer extends between the adhesive surfaces and over the protective layer, which reinforcement layer with a first side is detachable from the second side of the protective layer and at the position of the adhesive surfaces is immovably connected to the layer of label material, and with a second side is connectable with relatively great adhesive strength to a substrate. The provision of such a continuous adhesive layer to the underside of the label material means that the parallel side edges no longer slip relative to each other. This is the result of the grip that the rollers of the labelling machine continue to have on the label material, so that the protective layer is retained against the reinforcement layer over its entire width. In addition, owing to the greater tensile strength of the label, the throughput behaviour in the labelling machine is improved, so that relatively high labelling speeds, such as up to 600 labels per minute, are possible.

[0006] The continuous layer is preferably made of a plastic, such as a transparent polypropylene with a thickness of approximately 15 micrometres.

[0007] A further object of the invention is achieved by providing the label with a tear-off strip, which is bounded by two substantially parallel tear lines, each comprising a multiplicity of successive cuts in the label material, each cut running at an angle relative to an axis of the tear-off strip, which tear-off strip has a direction of tearing running in the direction of the axis, while the cut starts at a starting point situated near the axis and extends substantially linearly, and ends in an end point away from the axis lying at a distance from the starting point in the direction of tearing.

[0008] Making the label material according to the invention with such a tear-off strip has the advantage that the label material can be used in a simple manner on curved surfaces, for example cylindrical surfaces such as medicine bottles, test tubes, ampoules, hypodermic syringes and the like. With the use of these tear lines, the tear-off strip can be removed in a simple manner in order to release a part of the label material that can be stuck on a patient status card. The cuts of the tear-off strip are preferably made both in the layer of label material and in the protective layer. The removable central part of the layer of label material and also the removable part of the protective layer are then released in one movement.

[0009] With further preference, the layer of label material comprises a further tear line, which is situated at a distance from the two tear lines and lies above the detachable protective layer, not intersecting the latter. By breaking this tear line, it is possible to remove the removable part of the layer of label material together

with the removable part of the protective layer from the substrate, without the two layers being separated from each other, and a detaching tab is formed by the side edge of the protective layer lying clear of the central label material.

[0010] The tear-off strip preferably comprises a tab projecting in the direction of the axis of the tear-off strip. The presence of such a tab makes it easy to pull the tear-off strip out of the surface of the label material.

[0011] All the above will be explained in greater detail with reference to the figures shown in the appended drawing, in which:

Fig. 1 shows a view of a label according to the prior art;
Fig. 2 shows a perspective view of the label according to the present invention;
Fig. 3 shows a longitudinal sectional view of the label illustrated in Figure 2; and
Fig. 4 shows a detailed view of the label in the position in use.

[0012] Figure 1 shows a view of a label according to the prior art. The label comprises a layer of label material 3, which is provided with a double tear line 13 and a single tear line 7. A central part 8 is formed between the two tear lines 13, 7, which central part springs open after the tear line 13 has been broken. After the central part 8 has opened up, adhesive surfaces 9, 10 are no longer connected to each other. The central part 8 can be detached from the container 29 along respective tear lines 7, 7' together with the protective layer 8' lying against it, so that the protective layer 8' projects from underneath the central part 8 from the tear line 7 to the tear line 7'.

[0013] Figure 2 shows a perspective view of the label 1 according to the present invention. The label 1 comprises a top layer of label material 3, a detachable protective layer 4, and a continuous reinforcement layer 5, which continuous reinforcement layer 5 is detachably affixed in a self-adhesive manner on the carrier web 2.

[0014] The carrier web 2 forms part of a web of labels which is wound onto a roll, and on which several labels are stuck, which labels are intended for affixing on, for example, cylindrical surfaces.

[0015] The top layer of label material 3 comprises two side edges 24, 25 in the transverse direction, and at the position of the adhesive surfaces 9, 10 is connected in a directly adhering manner to the continuous layer 5. The central part 8 of the top layer of label material 3 extending between the two adhesive surfaces 9, 10 is separated from the underlying continuous layer 5 by the protective layer 4. Said protective layer 4 prevents the top layer of label material 3 from adhering to the top side 5' of the continuous layer 5.

[0016] The central part 8 of the top label material has a tear line 7 near side edge 24 and a tear line 11 near the opposite side edge 25, said lines having two series of perforations 13. A tear-off strip 12 is formed by the two perforation lines 13. Pulling a tab 14 on the top side of the tear-off strip 12 out of the plane of drawing causes the two perforation lines 13 to tear out in the direction of tearing. Said tear-off strip 12 is easy to remove through the successive cuts 15 of the perforation lines 13 when the label is stuck on a cylindrical container such as a medicine bottle, ampoule, hypodermic syringe or something of that kind. Such a tear-off strip is described in detail in the Dutch patent application filed in the name of applicant on the same date as the present application.

[0017] Figure 3 shows a longitudinal sectional view of the label illustrated in Figure 2, placed on the carrier web 2, the layers 3, 4 and 5 forming the label 1. The top layer of the label comprises the layer of label material 3, which covers the continuous reinforcement layer 5 at the position of the adhesive surfaces 9, 10, which lie to the side of the protective layer 4. The label material 3 is permanently connected to the underlying continuous reinforcement layer 5 at the position of the adhesive surfaces 9, 10.

[0018] The top side 4' of the protective layer 4 is detachable from the layer of label material 3 in a central part C. The underside 4" is detachable from the continuous reinforcement layer 5 in the central part C. The continuous reinforcement layer 5 is permanently connected to the layer of label material 3 in the side regions Z1 and Z2. The continuous reinforcement layer 5 is detachably connected by means of an adhesive to the carrier web 2 both in the side regions Z1 and Z2 and in the central part C.

[0019] The side of the layer of label material 3 facing the carrier web 2 is provided with an adhesive layer (not illustrated), which comprises a glue such as a self-adhesive permanent glue. The continuous layer 5 runs through underneath the protective layer 4 from the adhesive surface 9 to the adhesive surface 10, and can also be connected with its side parts Z1, Z2 and with its central part C adhering to a substrate.

[0020] The label 1 is provided with the tear line 7 in the layer of label material 3, which is present only in the layer of label material 3. The layer of label material 3 contains the two tear lines 13, which extend both through the layer of label material 3 and through the protective layer 4. The tear-off strip 12 is formed between the two tear lines 13. During removal of the tear-off strip 12, material is removed both from the layer of label material 3 and from the protective layer 4.

[0021] Figure 4 shows a detailed view of the label in the position in use. After detachment of the tear-off strip 12, the part 8 of the top layer of label material 3 can be folded back from the container 29 together with the protective layer 4, and the assembly of protective layer 4 and label material 3 can be detached in a simple manner from the container 29. After detachment, a part 17 of the protective layer 4, bounded by the tear line 7 and the edge 19, projects from underneath the label material 3. This part 17 simplifies the removal of the protective layer 4 from the central part 8 of the top label material 3.

[0022] The detached central part 8, which at the side lying against the protective layer 4 is provided with an adhesive layer, can subsequently be stuck in a simple manner on a patient status card or on another substrate.

Claims

1. Label (1), comprising a layer of label material (3) with two longitudinal edges (22, 23) and two side edges (24, 25), with two tear lines (13, 7) situated at a distance from each other and extending transversely to the longitudinal edges (22, 23) between the latter, and at an underside of said label material having a layer of adhesive, and also comprising a protective layer (4) lying with a first side (4') against the adhesive layer and detachable therefrom, which protective layer does not have great adhesive strength on a second side (4") lying opposite the first side (4'), and an adhesive surface (9, 10) being present between the side edges (24, 25) and a respective adjacent tear line (13, 7), said adhesive surface having relatively great adhesive strength for connection to a substrate, while the protective layer (4) does not extend over the adhesive surfaces (9, 10) when connected to a substrate, **characterized in that** a reinforcement layer (5) extends between the adhesive surfaces (9, 10) and over the protective layer (4), which reinforcement layer with a first side (5') is detachable from the second side (4") of the protective layer (4) and at the position of the adhesive surfaces (9, 10) is immovably connected to the layer of label material (3), and with a second side (5") is connectable with relatively great adhesive strength to a substrate.

2. Label (1), comprising a layer of label material (3) according to Claim 1, **characterized in that** the reinforcement layer (5) comprises a thin layer of plastic material.

3. Label (1) according to Claim 1 or 2, **characterized in that** the first tear line (13) comprises two adjacent weakened areas, which extend through the layer of label material (3) and through the protective layer (4), and bound a tear-off strip (12).

4. Label (1), comprising a layer of label material (3) according to Claim 3, **characterized in that** the label material (3) is provided with a tear-off strip (12), which is bounded by two substantially parallel tear lines (13), each comprising a multiplicity of successive cuts (15) in the label material (3), each cut running at an angle relative to an axis (6) of the tear-off strip (12), which tear-off strip has a direction of tearing running in the direction of the axis (6), while the cut (15) starts at a starting point situated near the axis and extends substantially linearly, and ends in an end point away from the axis and lying at a distance from the starting point in the direction of tearing.

5. Label (1), comprising a layer of label material (3) according to Claim 4, **characterized in that** the tear lines (13) have cuts (15) both in the layer of label material and in the protective layer (4).

6. Label (1), comprising a layer of label material (3) according to Claim 3, 4 or 5, **characterized in that** the tear-off strip (12) comprises a tab projecting in the direction of the axis (6) of the tear-off strip.

7. Label (1), comprising a layer of label material (3) according to one of the preceding claims, **characterized in that** the tear line (7) lies above the protective layer (4) and does not extend through the protective layer.

8. Assembly with a label according to one of Claims 1 - 7 and a detachable carrier web (2).

9. Assembly with a curved surface and a label (1) according to one of Claims 1 - 5.

10. Assembly according to Claim 9, in which the curved surface is a cylindrical container.

Fig 1

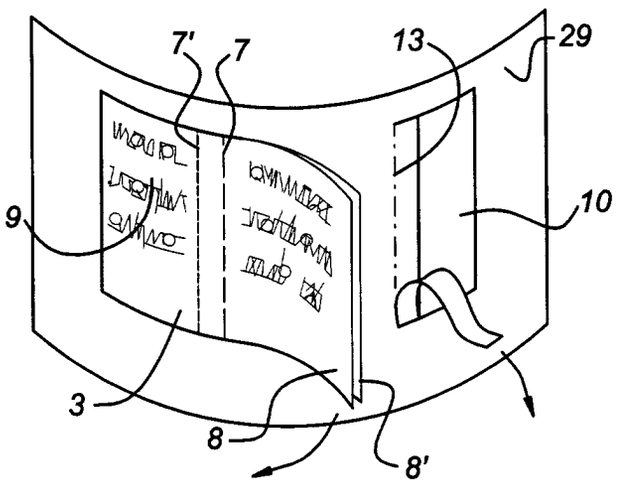


Fig 2

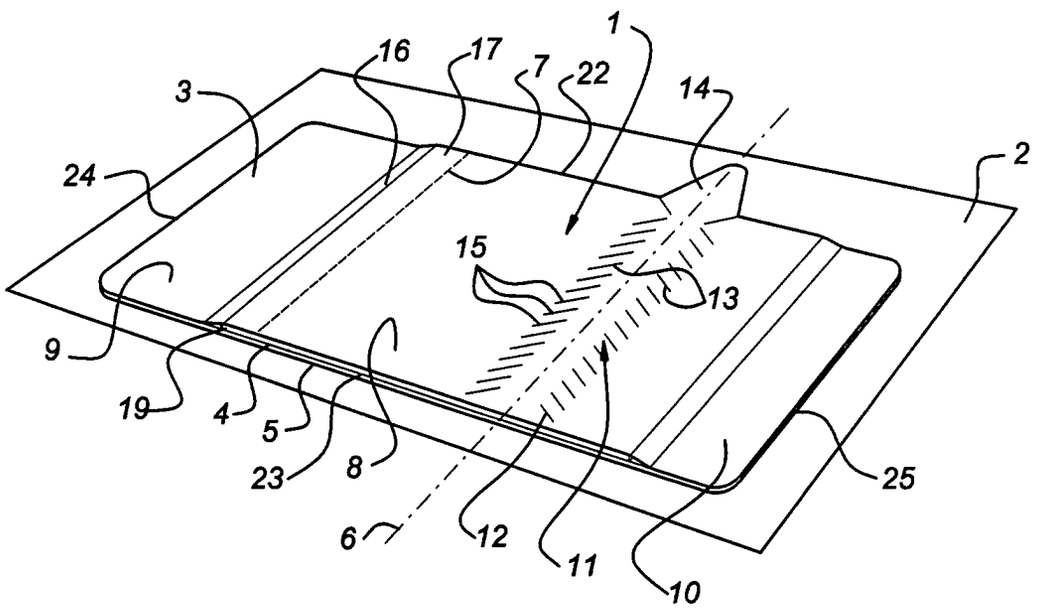


Fig 3

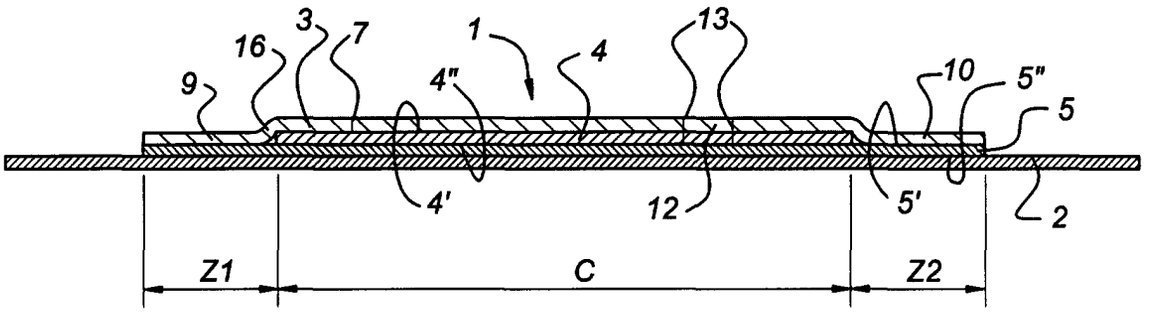
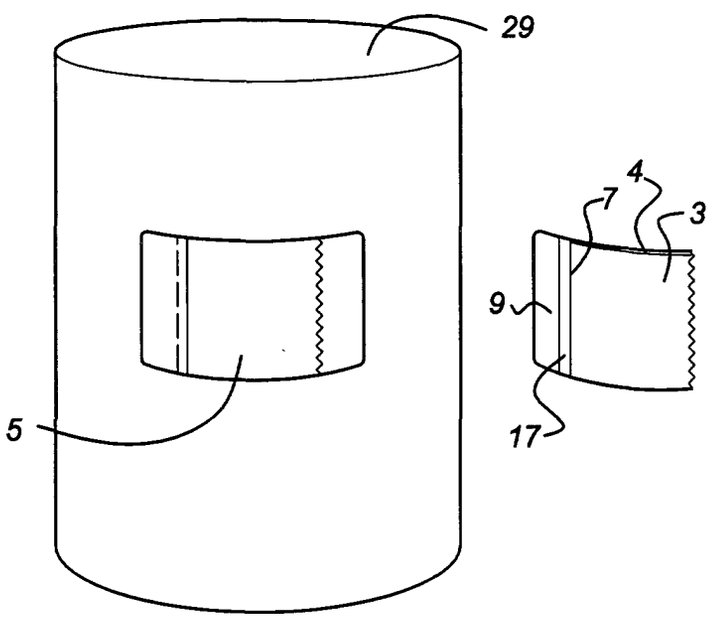


Fig 4



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EUROPEAN SEARCH REPORT

Application Number
EP 01 20 3821

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			G09F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	24 January 2002	Jandl, F

CATEGORY OF CITED DOCUMENTS

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