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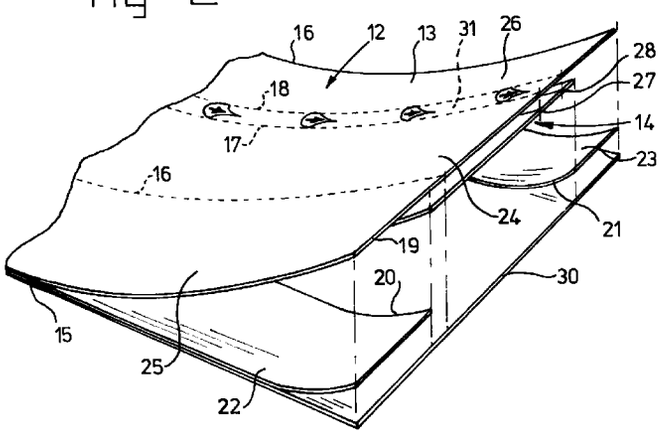
(54) Label web

(57) The invention relates to a label web for forming labels with two label parts, one part of which can be applied to a container and another part of which can be detached for applying to a patient's card or to another substrate. The label web according to the invention comprises a layer of label material having underneath it a protective layer which covers the adhesive of the label material. The layer of label material is provided with two weakening lines situated at a distance from each other. The protective layer comprises two cuts, the first of which is situated between the first side edge of the label web and the first weakening line in the layer of label material and the second cut of which is situated below or near the second weakening line of the layer of label material. Such a label web can advantageously be applied at high speed to containers by mechanical means and can easily be detached from the container by the user, since the protective layer projects slightly from underneath the detached label part.

Fig - 2



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Description

[0001] The invention relates to a label web comprising a layer of label material with mutually parallel first and second side edges extending in the longitudinal direction of the label web and having on an underside a layer of adhesive and also a protective layer lying against the adhesive layer and detachable therefrom.

[0002] EP-B-0,140,420, in the name of the applicant, discloses a label web with a number of self-adhesive labels situated at a distance from each other on a backing web. The labels are each provided with a transverse perforation, by means of which they are divided into two parts. After being detached from the backing web, the labels can be stuck on a medicine bottle, a test tube, an ampoule and the like. The backing web material situated underneath a first label part is cut through, so that said material is detached from the backing web with the label. This first part of each label is intended to be torn off along the perforation of the second label part stuck on a container and to be stuck to, for example, a patient's card. The backing web material of the first label part which remains attached to the label when the label is detached from the backing web extends slightly beyond the perforation. When the label is being placed on a container the first part thereof does not stick to the container, owing to the presence of the backing material. A projecting tab is consequently formed, which is easily pulled away from the container by a user. Owing to the part of the backing web material which projects beyond the perforation, this material can easily be removed from the detached first part of the label.

[0003] Although such labels are very useful in the case of manual application, such labels which are situated at a distance from each other are not so suitable for high-speed mechanical application. It is therefore an object of the present invention to provide a label web of the abovementioned type which is suitable for mechanical application at high speed, preferably with "Hapa" machines, which are known in the prior art. It is a further object of the present invention to provide a label web which can be printed afier unwinding from a stock roll, for example by means of a printer or by way of multicolour printing stations, and which can be placed on a container by mechanical means immediately afterwards.

[0004] For this purpose, the label web according to the present invention is characterized in that the layer of label material is provided with two weakening lines situated at a distance from each other and extending in the longitudinal direction, the protective layer comprising two cuts in the longitudinal direction, the first of which is situated between the first side edge and the first weakening line of the layer of label material and the second cut being situated below or near the second weakening line of the layer of label material.

[0005] The label web according to the present invention comprises no individual labels. Such labels can be formed by being cut off the strip in the transverse direction, for example after printing thereof. In this case the first weakening line divides each label into a first and a second part. After removal of the protective layer of the label material along the cuts in this layer, the adhesive on the side edge areas of a label is exposed and the label can be stuck by these side edge areas on a container. The part of the protective layer situated between the cuts remains applied to the label material and still covers the adhesive of a central label part, so that the label does not adhere to the container at that position. By pulling away the layer of label material along the second weakening line, an edge of the first label part which is not adhering to the container is detached from the side edge areas of the label which are adhering to the container, so that said central, first label part protrudes from the container. This part can subsequently be grasped by the user and torn away from the second label part along the first weakening line. The user now has a detached printed label part with a protective layer on the rear side thereof, which protective layer projects slightly, by means of an edge area bounded by the first cut, from underneath the detached label part. Said edge area of the protective layer can simply be grasped and removed from the adhesive layer of the detached label part. The detached label part can then be stuck on a patient's card, on another container or on any desired surface.

[0006] The protective layer preferably extends over the full width of the layer of label material, so that an evenly formed roll is obtained when the label web is rolled up. The second weakening line in the layer of label material is preferably in the form of two weakening lines situated at a short distance from each other, so that a tear-off strip is formed in the label material. Said tear-off strip can be provided with tear-off parts. When a label has been applied to a container the user can easily grasp these tear-off parts and tear away the tear-off strip in the vertical direction, with the result that the first part of the label comes away from the container and can be detached along the first weakening line. The tear-off parts can preferably comprise two short parallel cuts.

[0007] In a further embodiment according to the present invention the second cut of the protective layer is situated between the second weakening line of the layer of label material and the second side edge, the protective layer also comprising for each weakening line of the layer of label material a cut which is situated underneath said protective layer. Owing to the fact that the protective layer has also had a cut made in it at or near the positions of the weakening lines in the label material, in particular at the position underneath the tear-off strip, the protective layer can be removed simultaneously with the tear-off strip, so that the first label part is effectively released from the container in order to be detached by the user.

[0008] A number of embodiments of a label web according to the present invention and a method for printing and applying individual labels to a container will

be discussed by way of example with reference to the appended drawing, in which:

Figure 1 shows a container provided with a label according to the present invention, prior to the first label part being detached;
Figure 2 is a perspective view of a part of the label web according to the present invention;
Figures 3 and 4 show diagrammatically the detaching of the first label part according to the present invention;
Figure 5 shows diagrammatically a method for printing and applying a label using a label web according to the present invention; and
Figures 6 and 7 show two alternative embodiments of a label web according to the invention.

[0009] Figure 1 shows a label 1 according to the present invention, which label has been applied to a container 2, such as a medicine bottle. The label 1 comprises a first part 3 and a second part 4, which parts are interconnected along a first weakening line 5 in the form of a perforation. The first part 3 is connected to a third label part 8 by way of two further weakening lines 6 and 7. The label parts 4 and 8 are stuck to the container 2 by an adhesive layer. The rear side of the first label part 3 is provided with a protective layer, so that this part does not adhere to the container 2. A tear-off strip 9 with the protective layer also on the rear side is formed between the weakening lines 6 and 7, so that this tear-off strip does not adhere to the container 2 either. Two cuts 10 and 11 are made at the top side of the tear-off strip 9, thereby forming a tab by means of which the user can pull away the tear-off strip 9 in the vertical direction along the perforations 6, 7. In this way the first label part 3 comes away along the perforation line 6 from the part 8 stuck to the container 2, so that the first label part 3 protrudes from the container 2 and can easily be detached for applying to another substrate. The second label part 4 with the print on it continues to adhere to the container 2.

[0010] Figure 2 shows a part of a label web 12 according to the present invention which is cut through at right angles to the longitudinal direction. The label web 12 comprises a layer of label material 13 and a protective layer 14 situated underneath it. The label web 12 is bounded by side edges 15, 16 extending in the longitudinal direction and comprises three weakening or perforation lines 16, 17 and 18. A self-adhesive agent is applied over the entire underside 19 of the layer of label material 13. The protective layer 14 is provided with two cuts 20, 21 extending in the longitudinal direction.

[0011] When a label is being applied the side edge areas 22 and 23 of the protective layer 14 are removed from the layer of label material 13. The central part of the protective layer 14 is left behind on the underside of the first label part 24 and on a small part of the second label part 25 and is placed on a container by means of the label parts 25 and 26. The protective layer 14 is also provided with two cuts 27 and 28 situated underneath the perforation lines 17 and 18. In the embodiment shown a backing layer 30 is provided underneath the protective layer 14. The side edge areas 22 and 23 of the protective layer 14 can be permanently fixed to the backing layer 30, so that said side edge areas are detached from the layer of label material 13 on removal of the backing layer 30. Owing to the fact that the cut 20 in the protective layer 14 is situated between the perforation line 16 and the side edge 15, an overlapping part is formed after the first label part 24 has been detached along the perforation line 16, so that the central part of the backing layer can easily be detached by the user from the first label part 24, as shown in further detail in Figures 3 and 4.

[0012] As shown in Figure 3, the tear-off strip 31, situated between the perforation lines 17 and 18 and formed from a top layer of label material and the protective layer situated underneath it, can be pulled away by the user in the direction of the arrow A. This causes the first label part 24 to come away along the perforation line 17, and this label part will protrude from the container. This part can then be grasped by the user and detached from the second label part 25, as indicated diagrammatically by the arrow B. As shown in Figure 4, the detached label part 24 comprises a top layer of label material and a protective layer 14 projecting from underneath it, which protective layer can easily be detached by the user at the hatched part shown in the figure, in order to expose the adhesive of the label part 24.

[0013] Figure 5 shows a diagrammatic view of a device for automatic printing and application of labels according to the present invention. The label web 12 is supplied from a stock roll 35 and is guided beneath a printing station 36. The printing station 36 can comprise a flexographic printing station or a printer with, for example, four-colour printing. After the label parts 24, 25 and 26 have been provided with the desired print, the label web 12 is fed to a deflection roll 37 and a labelling knife 37', where the layer of label material 13 is cut through with a knife 39 at right angles to the longitudinal direction. The backing layer 30 with the edge areas 22 and 23 of the protective layer 14 are discharged to a take-up roll 38. After being cut off by the knife 39, the individual labels are gripped by a gripper head 40 which has a number of rotatable vacuum gripper elements 41. After being rotated through 90°, the label on which the adhesive layer has been exposed is pushed by a gripper element 41 of the rotating gripper head 40 against a container 42, which containers are supplied in a rotating manner by a feed conveyor 43. Since the containers 42 rotate, as shown diagrammatically by the arrows, the labels can be applied to the containers 42 without slipping. A very high speed of application is possible with the device according to Figure 5 and the printing and application of the labels is integrated in an efficient way in one device. Since the label web according to the

present invention is preferably of a flat design, said web can be fed in a stable manner onto the stock roll 35.

[0014] Figure 6 shows an alternative embodiment of a label according to the present invention, in which the layer of label material 45 is provided with two perforation lines 46 and 47. The protective layer 48 comprises a cut 49, which is situated to the left of the perforation line 46, and a second cut 50, which is situated underneath the perforation line 47. A thread 51 can be provided underneath the cut or weakening line 50 of the protective layer 48, for the purpose of detaching the first label part 52 from the second label part 53.

[0015] Finally, Figure 7 shows an embodiment in which the side edge areas on either side of cuts 55 and 56 of the protective layer 57 have been removed, and in which the layer of adhesive on the underside of the layer of label material 58 is covered in these side edge areas by the backing layer 59. A tear-off strip 60 is formed by weakening lines and cuts made through the layer of label material 58 and by the protective layer 57, which cuts are aligned in the vertical direction in Figure 7 and are indicated by dotted lines 61 and 62. Such a layout of the label web is not so advantageous, since a variation in the layer thickness occurs, so that when a web of label material is being placed on a stock roll said web can become unstable.

Claims

1. Label web (12) comprising a layer of label material (13) with mutually parallel first (15) and second (16) side edges extending in the longitudinal direction of the label web (12) and having on an underside a layer of adhesive and also a protective layer (14) lying against the adhesive layer and detachable therefrom, characterized in that the layer of label material (13) is provided with two weakening lines (16, 17) situated at a distance from each other and extending in the longitudinal direction, the protective layer (14) comprising two cuts (20, 21) in the longitudinal direction, the first (20) of which is situated between the first side edge (15) and the first weakening line (16) of the layer of label material (13) and the second cut (21) being situated below or near the second weakening line (17) of the layer of label material (13).

2. Label web (12) according to Claim 1, characterized in that the second weakening line (17) is in the form of two weakening lines (17, 18) situated at a short distance from each other, so that a tear-off strip (31) is formed in the label material (13).

3. Label web (12) according to Claim 2, characterized in that the tear-off strip (31) is provided in the longitudinal direction with tear-off parts (10, 11) situated a distance from each other.

4. Label web (12) according to Claim 3, characterized in that the tear-off parts (10, 11) comprise two short parallel cuts through the layer of label material (13).

5. Label web (12) according to one of the preceding claims, characterized in that the second cut (21) of the protective layer (14) is situated between the second weakening line (17) of the layer of label material (13) and the second side edge (16) and the protective layer (14) also comprises for each weakening line (16, 17, 18) of the layer of label material (13) a cut (20, 27, 28) which is situated underneath said protective layer.

6. Label web (12) according to one of the preceding claims, characterized in that a backing layer (30) is situated underneath the protective layer (14).

Fig - 1

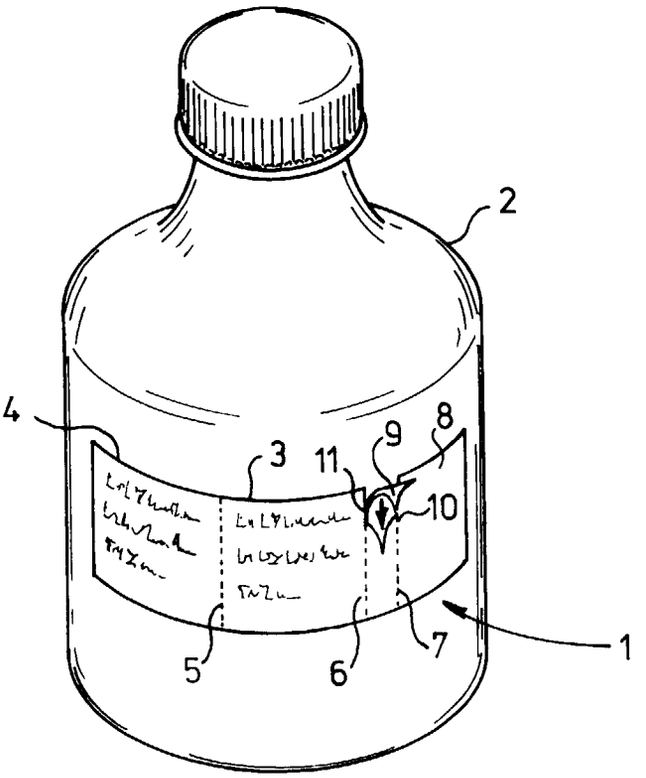
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Fig - 2

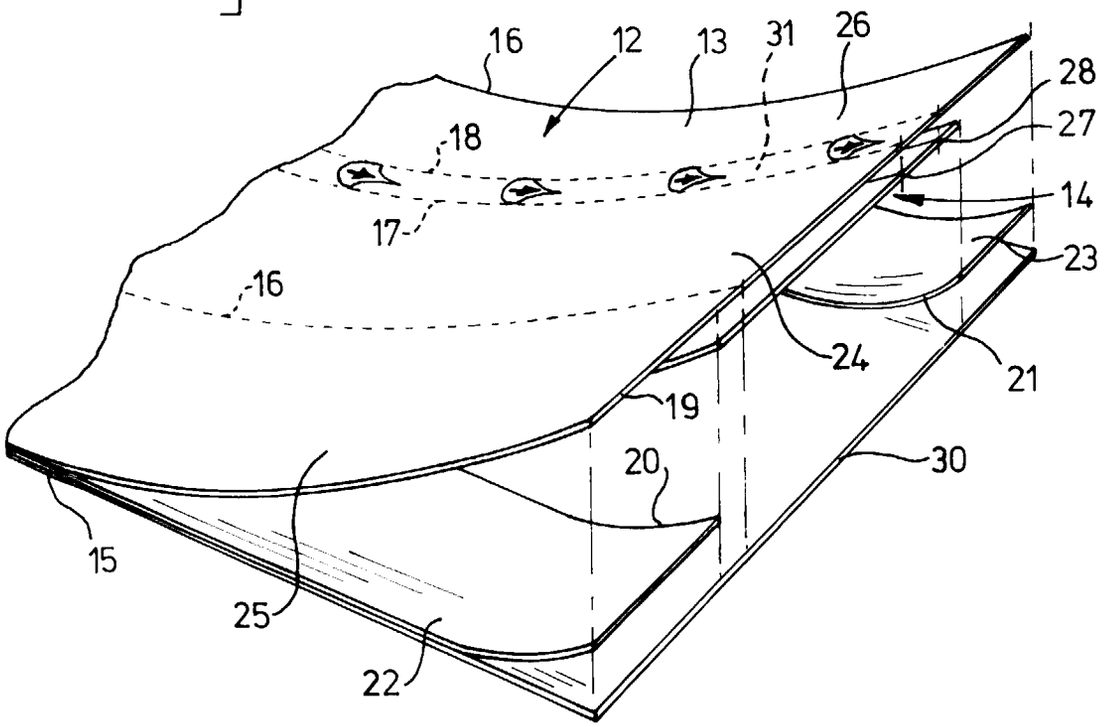
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Fig - 3

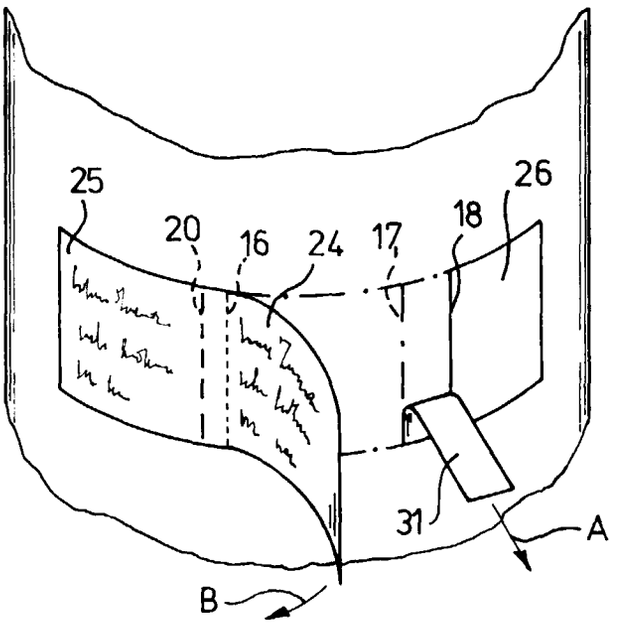


Fig - 4

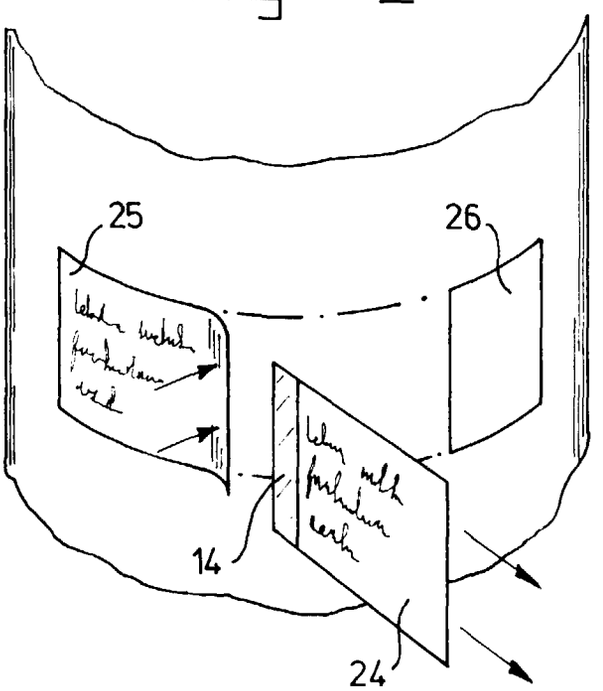


Fig - 5

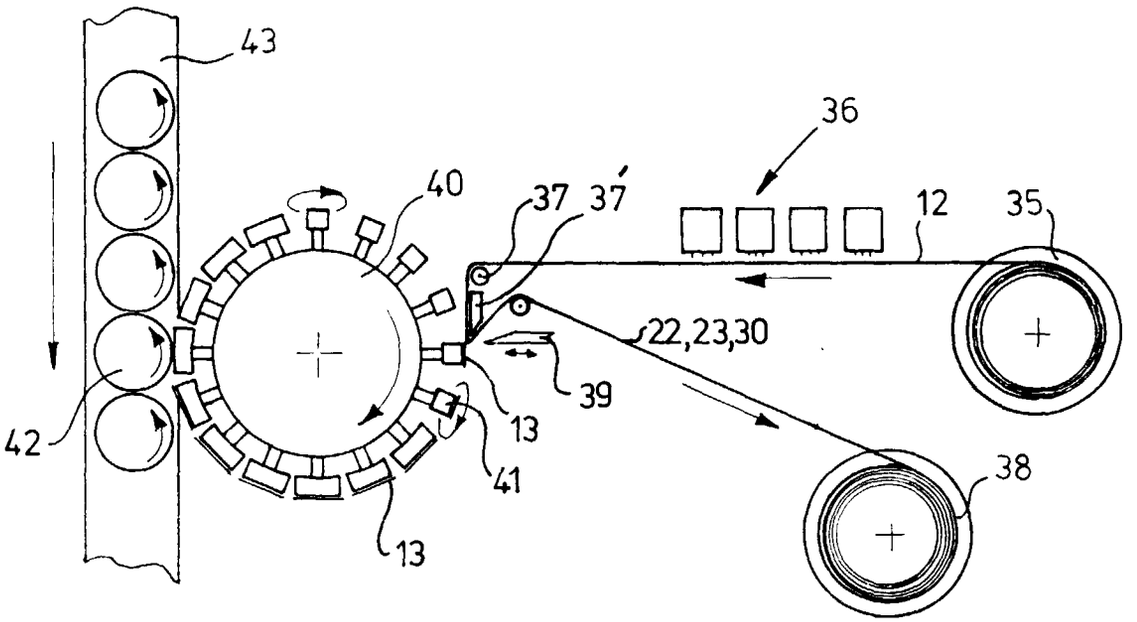


Fig - 6

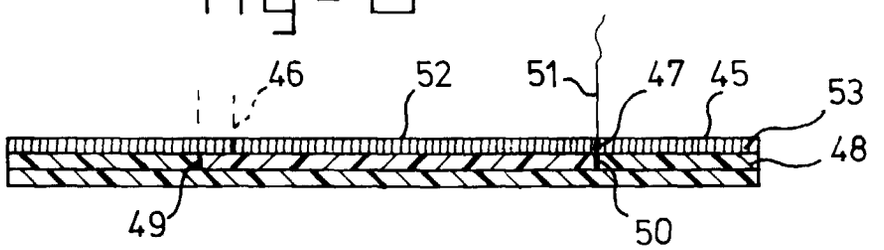
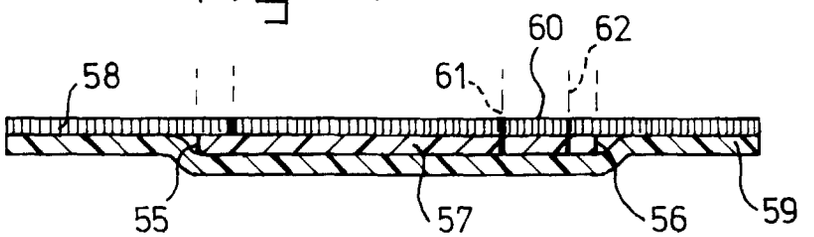


Fig - 7



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EUROPEAN SEARCH REPORT

Application Number
EP 99 20 0029

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A	EP 0 535 462 A (BAYER AG) 7 April 1993 * the whole document *	1-6	G09F3/02 G09F3/10
A	US 4 345 393 A (PRICE CHARLES E ET AL) 24 August 1982 * claim 1; figure 3 *	1	
A	DE 40 17 635 A (SCHNOOR GMBH) 5 December 1991 * claim 1; figure 2 *	1	
A	US 4 955 640 A (ANDERSON MICHAEL W) 11 September 1990 * column 3, line 52-68; figure 5 *	1	

TECHNICAL FIELDS SEARCHED (Int.Cl.6)

G09F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	19 April 1999	Puhl, A

CATEGORY OF CITED DOCUMENTS

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