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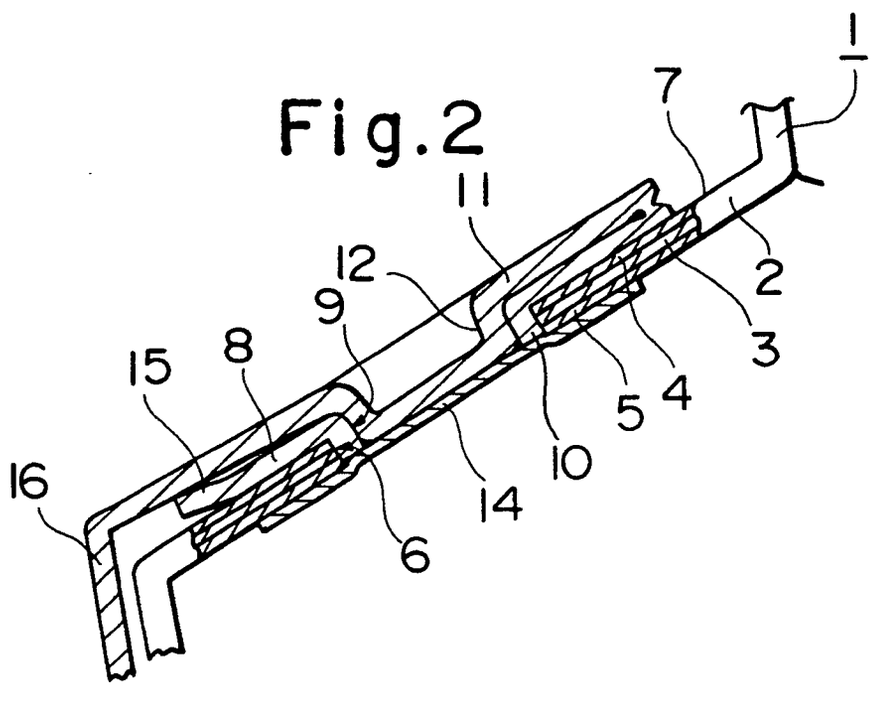
(54) Tightly sealed paper container with opening device.

(57) A tightly sealed paper container, comprising a through hole is formed in a container material (3) laminated with thermoplastic synthetic resin layers (4),(5) provided on the front and rear surfaces thereof, a bottom board (8) of the resin and having a through hole (6) substantially equal to the through hole (6) is bonded to the front surface of the container such that the through hole of the bottom board (9) substantially coincides with the through hole (6) of the container material (3), a top board (11) of the resin and having a coupling projection (12), the outer periphery of which is at least partially coupled in pressure contact into the through hole of the bottom board (8), is superposed on the bottom board with the coupling projection coupled into the through hole of the bottom board, and a barrier film (14) covering the through hole of the container material is laminated on the rear surface of the container, the barrier film being bonded to the rear surface of the container and the top surface of the coupling projection.

Fig.2



EP 0 444 862 A1

TIGHTLY SEALED PAPER CONTAINER WITH OPENING DEVICE

BACKGROUND OF THE INVENTION

Field of the Invention

This invention relates to a tightly sealed paper container provided with a simplified opening device.
Related Art Statement

Description of the Prior Art

As opening devices secured to tightly sealed paper containers, there have heretofore been known one in which a pull tab piece made of aluminium foil covering an opening is secured to the top surface of a container formed with the opening at a predetermined position thereof, another one in which a lining member made of synthetic resin and formed therein with a small through hole is bonded to the rear surface of the container formed with an opening at a predetermined position thereof such that the small through hole is positioned in the opening and a pull tab piece covering the opening is secured to the front surface of the container, and a further one consisting of a main body of pour-out member including a pour-out tube and a flange portion, and a cap inserted into the forward end of the pour-out tube, wherein the flange portion of the main body of pour-out member is bonded to the peripheral wall of the opening of the container.

Out of the conventional opening devices described above, in the one in which the pull tab piece covering the opening is secured to the front surface of the container, the section of the opening is liable to be irregular in form due to torn laminated resin, whereby inconvenience is experienced with the pour-out operation and it is unable to reseal after the opening operation.

Furthermore, in another one in which the lining member is bonded to the rear surface of the container formed with the opening and the pull tab piece covering the opening is secured to the top surface of the container, it is unable to reseal after the opening operation.

In the last one in which the flange portion of the main body of pour-out member including the pour-out tube and the flange portion is bonded to the peripheral wall of the opening of the container, the opening device is protruded from the container, whereby the height thereof serves an obstacle, as that handling of a carton and assembling of the container on a fill-up and tight-seal device come to be complicated. Moreover, the opening device is of a complicated shape, so that the opening device cannot be fully exposed to a hydrogen peroxide gas at the time of sterilizing the inner surface of the container prior to fill-up of the content, or there is a possibility that the gas remains in the opening device.

SUMMARY OF THE INVENTION

The present invention has been developed to obviate the disadvantages of the above-described conventional opening device.

To this end, the present invention has adopted such an arrangement that a through hole is formed in a container material laminated with thermoplastic synthetic resin layers provided on the front and rear surfaces thereof, a bottom board made of the thermoplastic synthetic resin and having a through hole equal in size to or smaller than the aforesaid through hole is bonded to the front surface of the container such that the whole of the through hole of the bottom board coincides with the through hole of the container material or is positioned within the contour of the through hole of the container material, a top board made of the thermoplastic synthetic resin and having a coupling projection, the outer periphery of which is at least partilly coupled in pressure contact into the inner wall of the through hole of the bottom board, is superposed on the bottom board with the coupling projection coupled into the through hole of the bottom board, further, a barrier film covering the trough hole of the container material is laminated on the rear surface of the container, and the barrier film is bonded to the rear surface of container and the top surface of the coupling projection coupled into the through hole of the bottom board.

The through hole formed in the container material is covered with the barrier film bonded to the rear surface of the container. This barrier film is bonded to the top surface of the coupling projection of the top board superposed on the bottom board bonded to the front surface of the container through the through hole of the container material and the through hole of the bottom board, whereby, when the top board is pulled up from the bottom boaed, a portion of the barrier film bonded to the top surface of the coupling projection of the top board is cut away, so that the through hole of the container material is opened.

When the top board pulled up from the bottom board as described above is superposed on the bottom board with the coupling projection of the top board coupled into the through hole of the bottom board, the outer periphery of the coupling projection is brought into pressure contact with the inner wall of the through hole of the bottom board to be held in a coupling state, whereby the through hole which has been opened is sealed.

The protrusion from the container material is as very small as the combined thicknesses of the top board and the bottom board, so that there is no trouble

for forming the container material secured thereto with the aforesaid opening device into a carton and handling of the carton, assembling of the container on the fill-up and tight-seal device and fill-up of the content can be performed without any trouble. Further, the container is so simple in construction that it has no pour-out tube portion, so that, at the time of sterilizing with the hydrogen peroxide gas, there are no possibilities that any portion is left unexposed to the hydrogen peroxide gas and the gas remains in the opening device.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a perspective view showing an embodiment of the present invention;

Fig. 2 is an enlarged sectional view taken along the line in Fig. 1;

Fig.3 is an enlarged perspective view showing the bottom board and the top board as illustrated in Fig. 1;

Fig. 4 is an explanatory view showing a state where the top board is pulled upwardly to open the container; and

Fig. 5 is a sectional view of essential portions showing another embodiment.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention will hereunder be described in detail with reference to embodiments shown in the drawings.

Referring to the drawings, designated at reference numeral 1 is a main body of paper container and 2 a container material forming the main body of paper container 1. This container material 2 is formed of a laminated body in which layers 4, 5 made of thermoplastic synthetic resin such as polyethylene and polypropylene are laminated on the outermost layers of the front and rear surfaces of a paper board 3, and, as necessary, a reinforcing layer such as an aluminium foil layer and a synthetic resin layer of barrier property is laminated on a substrate thereof. Denoted at 6 is a through hole formed in the container material 2 positioned at a top wall 7 of the main body of paper container 1.

Designated at 8 is a bottom board made of synthetic resin bonded to the front surface of the container material 2 formed therein with a through hole 6. This bottom board 8 is formed therein with the through hole 9 smaller in size than the through hole 6 formed in the container material 2. A raised wall 10 having substantially the same height as the thickness of the container material 2 is provided along the contour of the aforesaid through hole 9 in a tubular shape on the side of the surface of the bottom board 8, to which the container material 2 is bonded. The bottom board 8 with this arrangement is bonded to the front surface of the container material 2 with the tubular raised wall 10 inserted into the through hole 6 of the container material 2. Thus, the through hole 9 of the bottom board 8 bonded to the front surface of the container material 2 is positioned within the contour of the through hole 6 of the container material 2.

Denoted at 11 is a top board made of synthetic resin superposed on the bottom board 8. This top board 11 is formed with a coupling projection 12, the outer periphery of which is at least partially coupled in pressure contact into the inner wall of the through hole 9. In the embodiment illustrated, pressure contact projections 13 coming into pressure contact with the outer periphery of coupling projection 12 of the top board 11 are formed on the inner wall of the through hole 9 of the bottom board 8. However, the present invention should not necessarily be limited to this, and pressure contact projections may be formed on the outer periphery of the coupling projection 12 of the top board 11, or the outer periphery of the coupling projection 12 of the top board 11 may be brought into pressure contact with the entire circumference of the inner wall of the through hole 9 of the bottom board 8, for example. The pressure contact may be permitted to the extent where, at least, the coupling projection 12 coupled into the through hole 9 is not easily drawn out therefrom. The top board 11 with this arrangement is superposed on the bottom board 8 bonded to the front surface of the container material 2 with the coupling projection 12 coupled into the through hole 9. Thus, the top surface of the coupling projection 12 of the top board 11 is exposed to the interior of the main body of paper container 1 through the through hole 9 and the through hole 6 of container material 2.

Further, a barrier film 14 made of aluminium foil or the like covering the through hole 6 of the container material 2 is laminated on the rear surface of the container material 2 is bonded to the top surface of the coupling projection 12 of the top board 11, which is exposed through the rear surface of the container material 2 and the through hole 6.

In this embodiment, the upper end of the top board 11 is rockably connected to the upper end of the bottom board 8. Furthermore, the lower end of the bottom board 8 curves upwardly, whereby an apron 15 is formed to avoid saggs of liquid. A ring-shaped tag 16 is provided at the lower portion of the top board 11. The shape of this tag 16 should not be limited to a specific one, and any shape easily be held may be adopted.

Fig. 5 shows another embodiment, in which the through hole 6 formed in the container material 2 is equal in size to the through hole 9 formed in the bottom board 8, whereby the bottom board 8 is bonded to the front surface of the container material 2 with the through hole 9 of the bottom board 8 coinciding with the through hole 6 of the container material 2.

Incidentally, according to the present invention, the barrier film 14 may be laminated on the rear surface of the paper board 3 forming the container material 2, whereby the thermoplastic synthetic resin layer 5 having as its substrate the reinforcing layer such as the synthetic resin layer of the barrier properties is utilized as it is.

As described hereinabove, according to the present invention, for opening the container, by a simple means of merely pulling up the top board from the bottom board, part of the barrier film bonded to the top surface of the coupling projection of the toy board is cut away to open the through hole of the container material, so that the container can be opened. The top board which has been pulled up is superposed on the bottom board and the coupling projection of the top board is coupled into the through hole of the bottom board, so that the container can be easily resealed.

Further, the protrusion from the container material is as very small as the combined thicknesses of the top board and bottom board, so that there is no trouble for forming the container material secured thereto with the aforesaid opening device into the carton, and handling of the carton, assembling of the container on the fill-up and tight-seal device and fill-up of the contact can be easily performed without requiring special reconstruction and installation of additional equipment.

Furthermore, the opening device is so simple as to have no pour-out tube portion, so that sterilizing with the hydrogen peroxide gas can be easily performed and the hydrogen peroxide gas can be easily removed after the sterilization.

Moreover, the mechanical strength around the through hole of the container material can be reinforced with the bottom board and saggs of liquid can be prevented from occurring.

Claims

1. A tightly sealed paper container, wherein a through hole (6) is formed in a container material (3) laminated with thermoplastic synthetic resin layers (4,5) provided on the front and rear surfaces thereof, characterized by a bottom board (8) made of thermoplastic synthetic resin and having a through hole (9) equal in size to or smaller than said through hole (6) in the container material (3), is bonded to the front surface of the container such that the whole of the through hole (9) of the bottom board (8) coincides with the through hole (6) of the container material or is positioned within the contour of the through hole (6) of the container material; a top board (11) made of thermoplastic synthetic resin and having a coupling projection (12), the outer periphery of which is at least partially coupled in pressure contact with the inner wall of the through hole (9) of the bottom board (8), the top board being superposed on the bottom board (8) with said coupling projection (12) coupled into the through hole (9) of the bottom board (8); and a barrier film (14) covering the through hole (6) of the container material (3) and laminated on the rear surface of the container (2), said barrier film (14) being sealed with respect to the rear surface of the container material and to the top surface of the coupling projection (12) coupled into the through hole (9) of the bottom board (8).

2. A container according to Claim 1, wherein said bottom board (8) has an upstanding tubular projection (10) which engages within said through hole (6) of the container material (3), the inner periphery of said tubular projection (10) providing said through hole (9) in which said coupling projection (12) engages.

3. A container according to Claim 2, wherein pressure contact projections (13) are provided on the inner periphery of said tubular projection (10) to bear against said coupling projection (12) when engaged in said through hole (9).

4. A container according to any one of Claims 1 - 3 wherein said coupling projection (12) is provided with pressure contact projections on its outer periphery.

5. A container according to any one of Claims 1 - 4 wherein said top board (11) is pivotally connected to said bottom board (8) at one pair of corresponding upper ends thereof.

6. A container according to any one of Claims 1 - 5 wherein the lower end of the bottom board (8) curves upwardly away from said front surface of the container.

7. A container according to any one of Claims 1 - 6 wherein the lower end of the upper board (11) is formed as a ring-like tag (16).

Fig.1

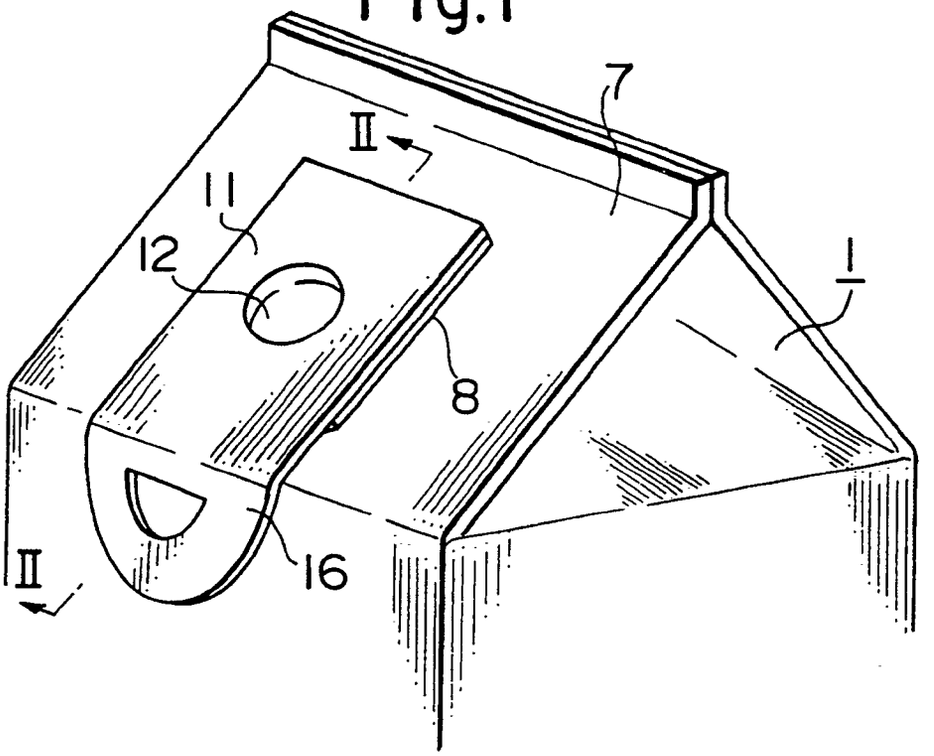


Fig.2

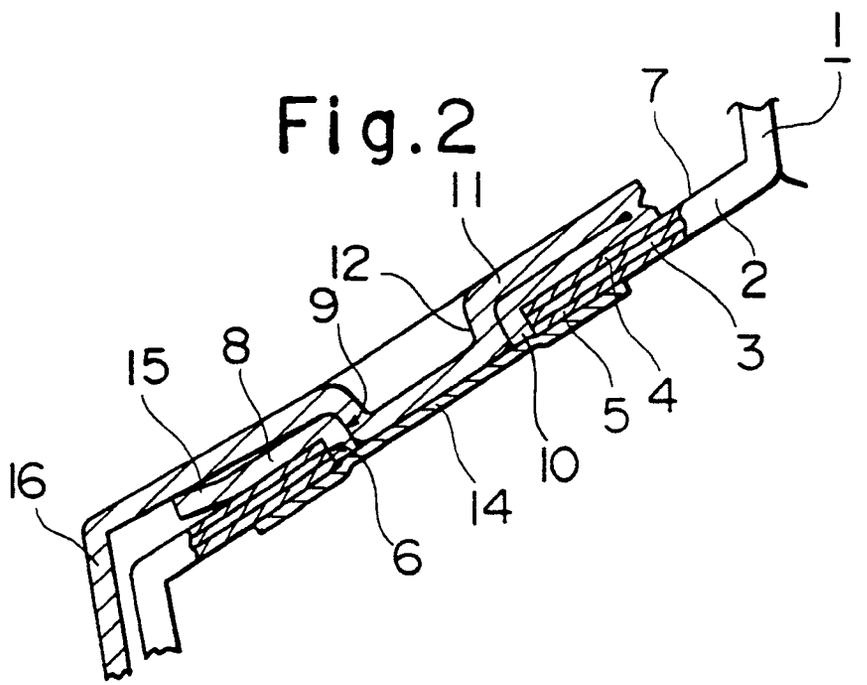


Fig.3

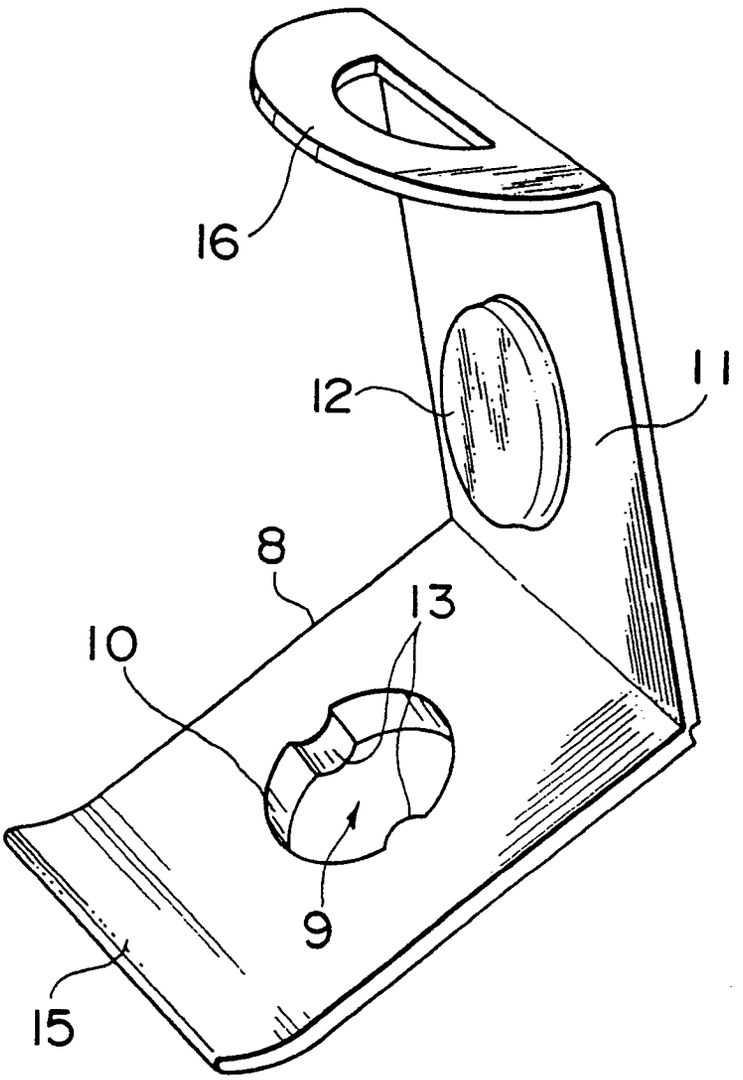


Fig. 4

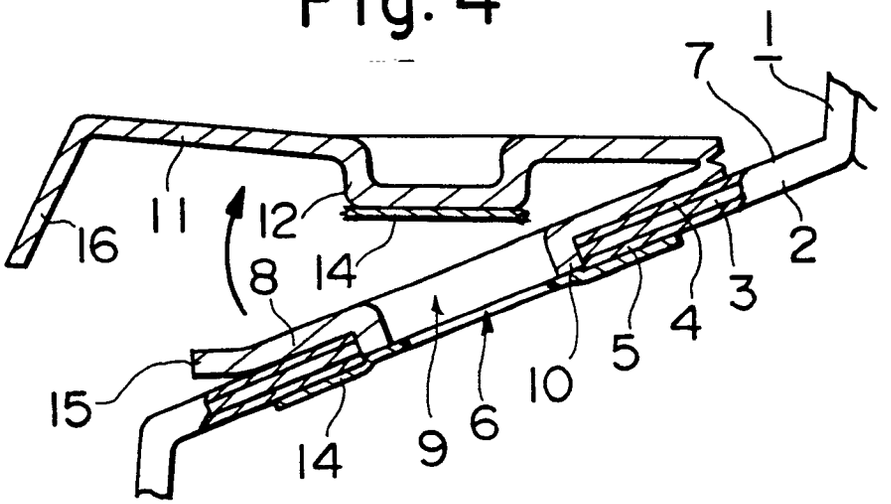
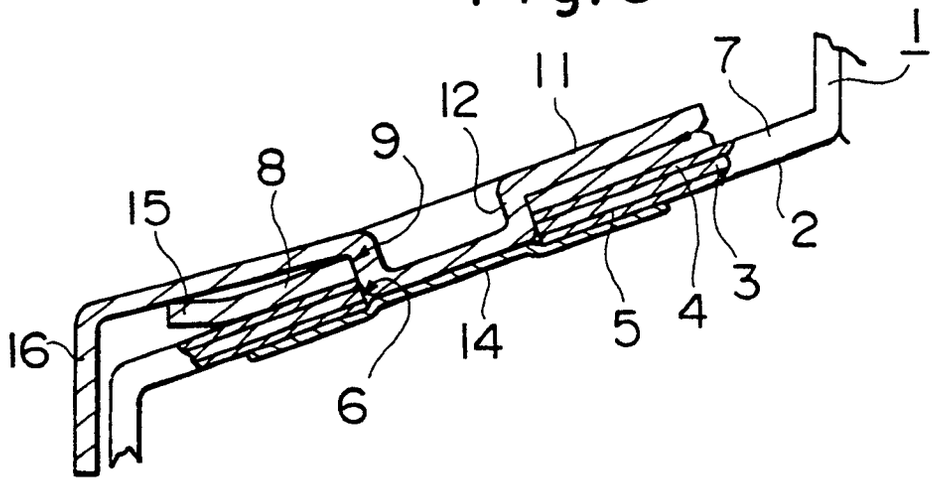


Fig. 5



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EUROPEAN SEARCH REPORT

Application Number

EP 91 30 1513

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.5)
X	US-A-4 770 325 (GORDON et al.) * Column 2, lines 17-56; column 3, lines 24-26; column 1, lines 55-58; figures 1,2 *	1,5	B 65 D 5/70 B 65 D 5/72
Y		7	
A		3,6	
Y	US-A-4 407 424 (HEYN) * Column 2, lines 26-30; figure 2 *	7	
A	EP-A-0 291 112 (PROCTER & GAMBLE) * Abstract *	1,2,6	
A	EP-A-0 214 791 (3M)		
A	EP-A-0 155 738 (TETRA-PAK)		

TECHNICAL FIELDS SEARCHED (Int. Cl.5)
B 65 D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	17-05-1991	LEONG C.Y.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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