

12

# EUROPEAN PATENT APPLICATION

21 Application number: 90300746.6

51 Int. Cl.<sup>5</sup>: B65D 85/32

22 Date of filing: 24.01.90

30 Priority: 25.01.89 GB 8901593

43 Date of publication of application:  
01.08.90 Bulletin 90/31

84 Designated Contracting States:  
AT CH DE ES FR GB IT LI NL

71 Applicant: DOLPHIN PACKAGING MATERIALS  
LIMITED  
Fleets Lane  
Poole, Dorset BH15 3BT(GB)

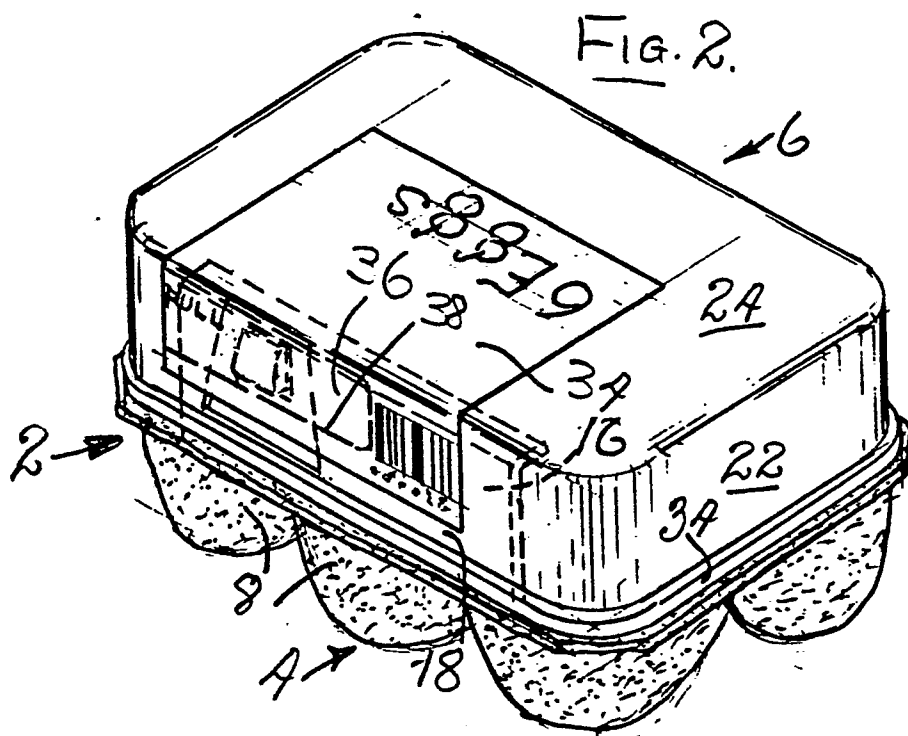
72 Inventor: Wilkinson, Ian Garth  
West Point, Ashwell  
Nr. Baldock, Hertfordshire SG7 5PN(GB)

74 Representative: BATCHELLOR, KIRK & CO.  
2 Pear Tree Court Farringdon Road  
London EC1R 0DS(GB)

54 Container for eggs.

57 A container for eggs (2) has a base (4) and a hinged lid (6). There are co-operating parts on the lid and the base which hold the lid in the closed position. The co-operating parts are covered by a label

(34) so that, after the lid has been closed for the first time, the co-operating parts cannot be separated without irreparably tearing the label.



EP 0 380 321 A1

## CONTAINER FOR EGGS

This invention relates to containers for eggs comprising a base defining a multiplicity of recesses each for receiving an egg and a hinged lid. The invention is also concerned with a method of manufacturing such a container.

Such containers are well known and the lid and base are formed with one or more co-operating parts to hold the lid closed over the base. These co-operating parts can readily be separated to enable the lid to be opened and very often a potential customer will take a container of eggs from a shelf in a store, open the lid to inspect the eggs, and then either take the container away to a "check-out" or replace it on the shelf. If the container is replaced on the shelf there is the possibility that the lid will not be correctly closed and also there is the possibility that the eggs will be tampered with.

An object of the present invention is to provide a container which readily indicates whether or not the lid has been opened.

According to a first aspect of the invention, a container for eggs comprises a base defining a multiplicity of recesses each for receiving an egg and a hinged lid whereby the lid can be moved between open and closed positions with respect to the base; co-operating means on the base and on the lid for retaining the lid in its closed position; characterised in the provision of a cover which fits over said co-operating means to prevent the co-operating means from being separated to allow the lid to open without first irreparably tearing said cover to expose the co-operating means.

Conveniently, the cover comprises a label secured to the container and having a tear-off strip which overlies the co-operating means.

By employing such a cover, the co-operating means cannot be separated to open the lid to obtain access to the eggs without tearing the cover to expose the co-operating means and then it is clear to anyone inspecting the container that it has been opened.

According to a second aspect of the invention, in a method of manufacturing a container, a base defining a multiplicity of recesses each for receiving an egg and having a part with a projection thereon is formed separately from a lid which has an opening in a side wall thereof, the base and the lid are brought together to a position where they are connected together by hinge means which permits the lid to be moved between an open position and a closed position in which the projection extends through the opening in the side wall to retain the lid in the closed position and a label provided in the lid covers the opening in the side wall whereby, on first closing the lid, the projection

enters the opening and cannot be displaced therefrom without destroying the part of the label which covers the opening.

It is known for egg containers to be moulded in one piece from a paper pulp and to accommodate six or twelve eggs. This type of egg box is found to be sufficiently rigid to take the weight of six or twelve eggs when a shopper, using only one hand, lifts the egg box from a shelf in a supermarket. It is also known for egg boxes to be made entirely from transparent plastics material, but such egg boxes are necessarily of a rather flimsy construction and, when filled with eggs, may not be sufficiently rigid to enable a shopper to pick up the container with one hand from the shelf in a supermarket. Consequently, the base may be of paper pulp and the lid of transparent plastics material.

Conveniently, the base has a flap which, in the closed position of the lid, is arranged to lie alongside a side wall of the lid and said co-operating means are provided on said side wall and said flap.

In order that the invention may be more readily understood, it will now be described, by way of example only, with reference to the accompanying drawings, in which:-

Figure 1 is a perspective view of an egg box with the lid in the open position;

Figure 2 is a perspective view of an egg box in the closed condition;

Figures 3 and 4 are scrap section views showing alternative arrangements for securing the lid to the base; and

Figure 5 is a diagrammatic view showing a typical assembly line for production of the egg boxes according to the invention.

As seen in Figure 1, an egg box 2 comprises a base 4 and a lid 6. The base is moulded from paper pulp to provide six recesses 8, each arranged to receive an egg, and these are separated by walls 10 and upstanding pillars 12. The uppermost part of the base has a flat surface which includes inwardly projecting support portions 14 at one side. At the opposite side of the base is formed a flap 16 provided with an outwardly extending projection 16A.

The lid 6 has longitudinal side walls 18, 20 and transverse side walls 22, the walls being interconnected by a flat web 24.

The wall 20 is provided with projecting tabs 26, each of which is formed with short, downwardly projecting, cylindrical portions 28. The wall 18 has a slightly depressed portion 30 having a rectangular hole 32 through it, and a rigidifying rim 34 of channel-section is formed around the periphery of the open end of the walls.

The lid is hinged to the base by securing the tabs 26 to the support portions 14 on the base. In the example illustrated in Figure 3, the cylindrical portions 28 are passed through holes in the support portions and then the cylindrical portions are deformed by heat and pressure to form a riveted connection, as shown in Figure 3. The tabs 26 include portions which serve as hinges.

Other methods of joining the lid and the base may be used, e.g. by the use of an adhesive, by stapling, or by high frequency heating. In the alternative arrangement, shown in Figure 4, the support portions 14 on the base each have a downwardly projecting plug 60. The thin-walled lid has a moulded hinge portion 61 and an inwardly projecting portion 62 having a pair of spaced apart sockets 63. The projecting portion 62 fits underneath the support portions 14 and the lid and the base are held together by the plug and socket connections.

In another method of joining the lid to the base, each tab has a hole formed in it and the holes are aligned with upstanding short cylindrical posts moulded on the base. The holes have a number of slits extending outwardly from their periphery and, as the diameter of each hole is slightly less than the diameter of the post, the slits allow a post to be pushed through the hole and the post is then tightly retained in the hole.

When the lid is closed on to the base section, the flap 16 fits inside the lid alongside the front wall 18 and the projection 16A snaps into the hole 32 in the wall 18 of the lid 6. The lid is thus latched in closed condition and can only be opened by depressing the projection 16A to release it from latching engagement with the lid.

In order to prevent the lid being inadvertently or purposely opened during storage or by a customer before purchase, a cover in the form of a self-adhesive label is fixed to the lid, as shown at 34 in Figure 2. This label may contain descriptive or advertising matter and a bar-code as used in supermarket check-out systems. This label is fixed to the upper surface of the lid and passes also over the front wall 18, covering the hole 32. When the lid is closed, after the base has been filled with eggs, the latching projection 16A adheres to the self-adhesive surface of the label as it snaps into the hole 32. A tear-off strip or tab 36 on the label can be removed by tearing it along perforations 38 in order to expose the latching projection 16A which can then be depressed to allow the lid to be opened.

By the use of this arrangement, a package that has been opened or tampered with can be readily detected.

In Figure 5 is illustrated an automatic system for the assembly of egg boxes according to the invention.

A stack 40 of nested bases 4 located at a base de-nesting station A and a stack 42 of nested lids 6 is located at a lid de-nesting station B. The bases are de-nested by well-known apparatus (not shown) and fed one-by-one to a stepwise moving conveyor 44.

The lids are similarly de-nested and fed on to a stepwise moving conveyor 46 and, at station C, a punching device, shown diagrammatically as a punch 48 and anvil 50, punches the rectangular hole 32 into the wall 18.

Both lids and bases then progress to a station D where they are connected together in any of the ways referred to earlier.

Next, the joined, open egg box is conveyed to a station E where a labelling machine (not fully illustrated) attaches the self-adhesive label to the lid, as described with reference to Figure 2.

The completed container with the lid in the open position then passes to a station F where a well-known type of stacking machine stacks them in nested condition for despatch, storage, or use. The conveyor may be of the carousel type.

It is, of course, possible to include such an installation, as described with reference to Figure 4, in an egg packing station and, in such cases, additional loading stations (not shown) can be provided, following station E, to fill the boxes with eggs by means of the customary egg transfer machine, and to close the lids, thus covering the projections with the labels. The stacking station F would not then be provided.

## Claims

1. A container for eggs comprising a base (4) defining a multiplicity of recesses (8) each for receiving an egg and a hinged lid (6) whereby the lid can be moved between open and closed positions with respect to the base; co-operating means (16A, 32) on the base and on the lid for retaining the lid in its closed position; characterised in the provision of a cover (34) which fits over said co-operating means to prevent the co-operating means from being separated to allow the lid to open without first irreparably tearing said cover to expose the co-operating means.

2. A container as claimed in claim 1, characterised in that the cover comprises a label secured to the container and having a tear-off strip (36) which overlies the co-operating means.

3. A container as claimed in claim 1 or 2, characterised in that the co-operating means comprises a projection (16A) on part of the base and which is arranged to extend through an opening (32) in part of the lid (6) when the lid is in the closed position.

4. A container as claimed in claim 3, characterised in that the projection is on a flap (16) which, in the closed position of the lid, lies alongside and within a sidewall of the lid with the projection extending through the opening which is formed in the side wall.

5

5. A container as claimed in claim 3, characterised in that the label is secured to the lid and is stuck to the end face of the projection.

6. A container as claimed in any preceding claim, in which the base is of paper pulp and the lid is of transparent plastics material.

10

7. A container as claimed in any preceding claim, characterised in that the base and the lid are connected together by plug and socket type connections.

15

8. A method of manufacturing a container in which a base defining a multiplicity of recesses each for receiving an egg and having a part with a projection thereon is formed separately from a lid which has an opening in a side wall thereof, the base and the lid are brought together to a position where they are connected together by hinge means which permits the lid to be moved between an open position and a closed position in which the projection extends through the opening in the side wall to retain the lid in the closed position and a label provided in the lid covers the opening in the side wall whereby, on first closing the lid, the projection enters the opening and cannot be displaced therefrom without destroying the part of the label which covers the opening.

20

25

30

9. A method as claimed in claim 8, in which the label is stuck to the lid after the lid and the base have been connected together.

35

10. A method as claimed in claim 8 or 9, in which the lid is of transparent plastics material and the base is of an opaque material.

40

45

50

55

FIG. 1.

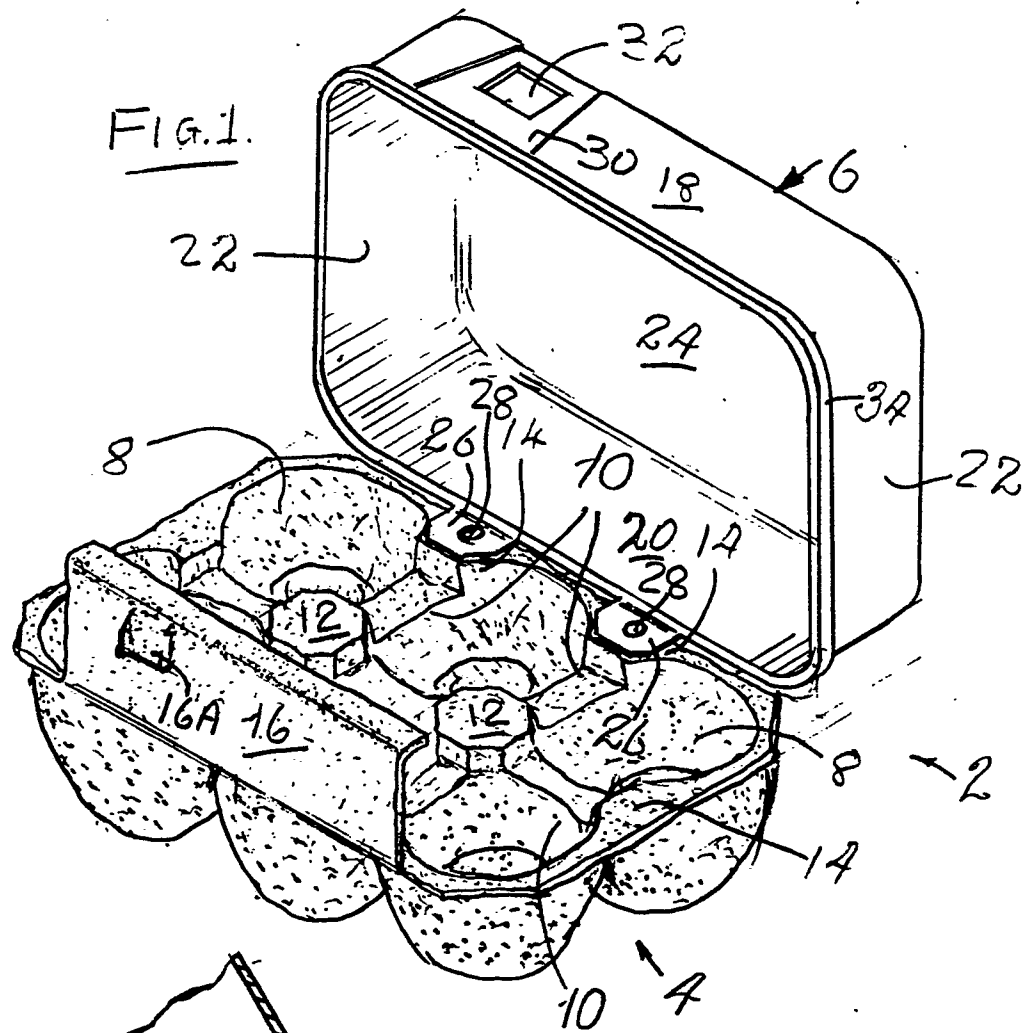


FIG. 3.

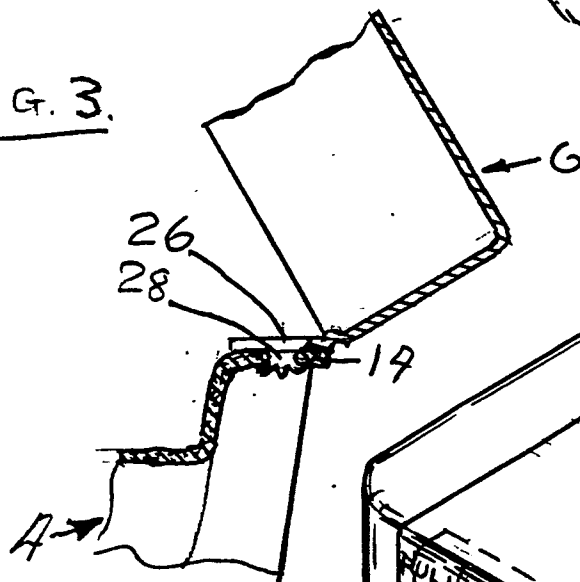
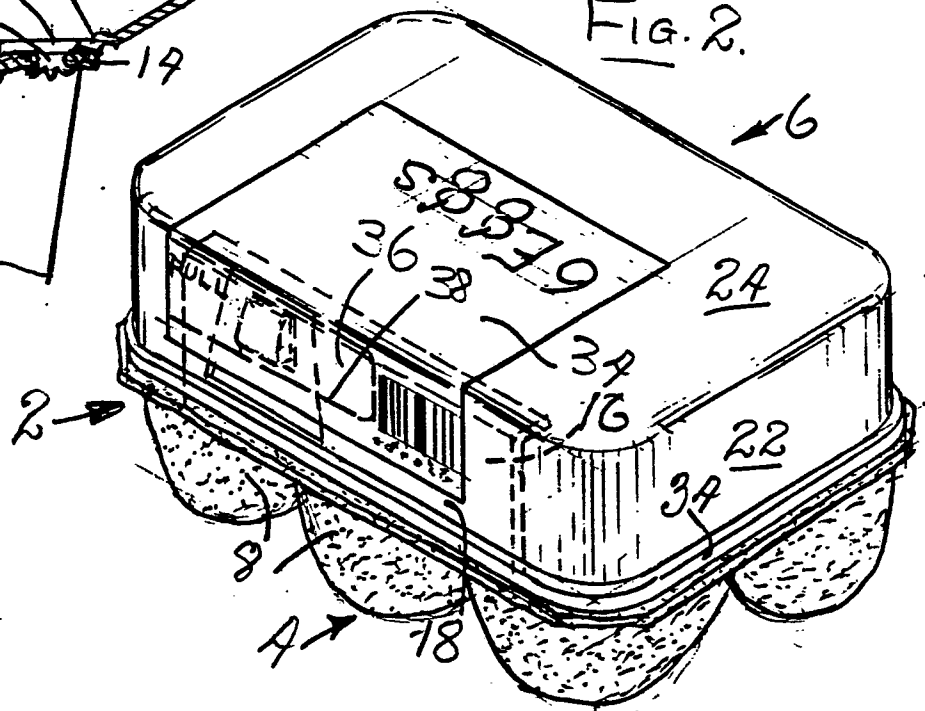


FIG. 2.



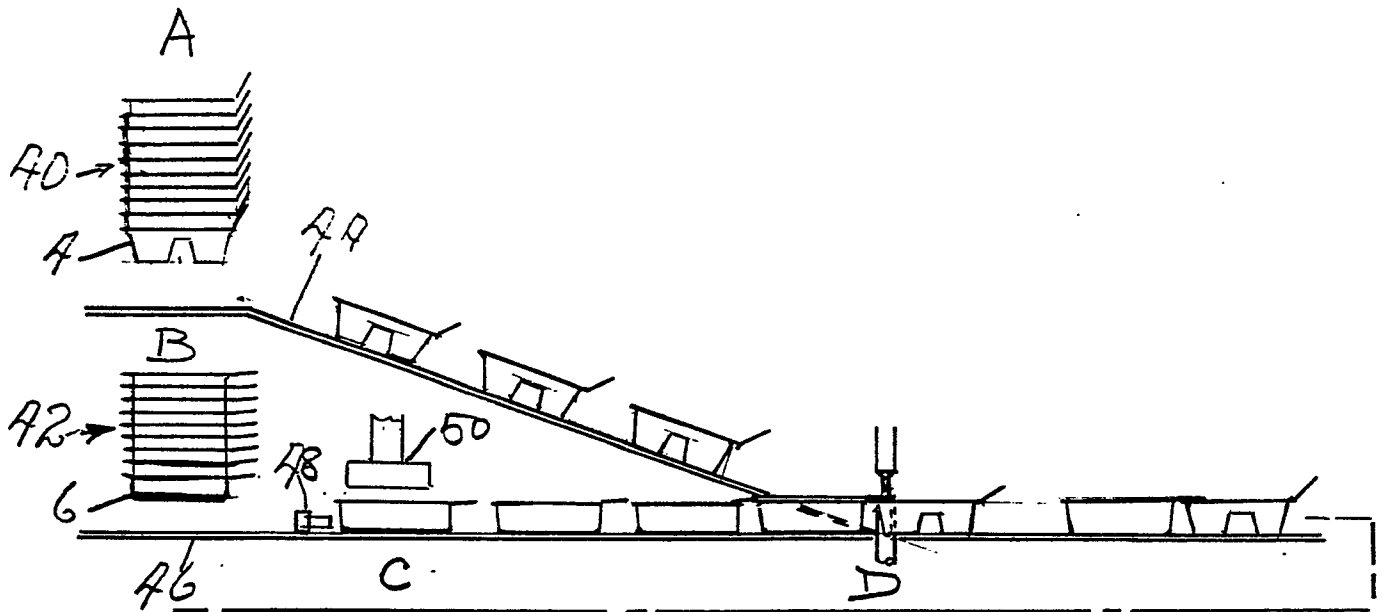


FIG. 5

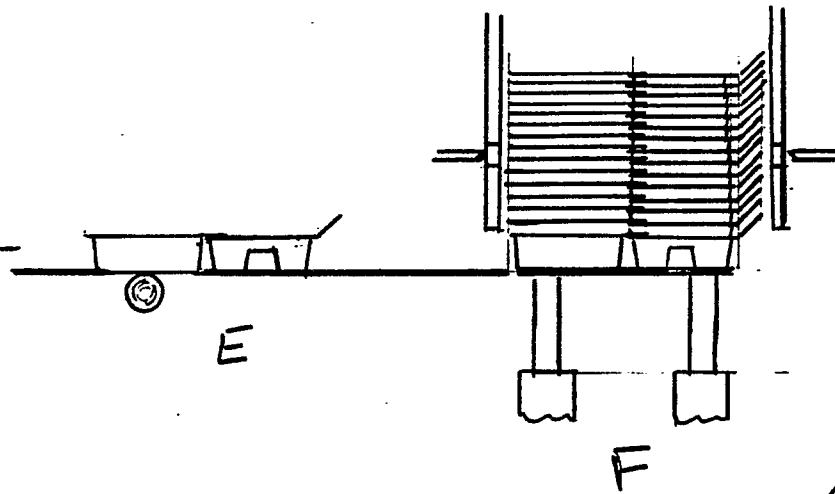
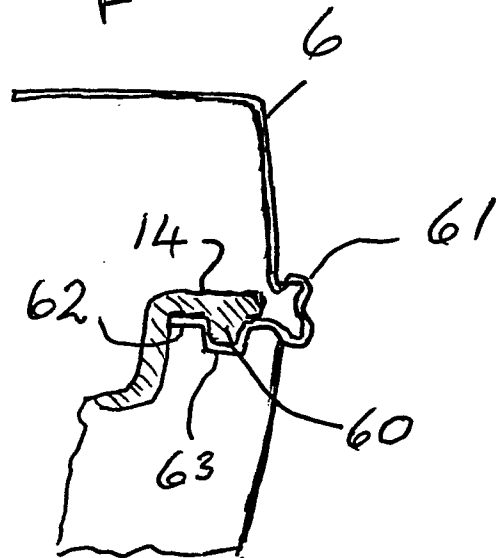


FIG. 4





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	EP-A-0 200 616 (ONO) * Column 3, lines 10-13; column 3, line 50 - column 4, line 4; column 4, line 47 - column 5, line 4; figure 2 *	1,3-5	B 65 D 85/32
Y	---	6,2	
Y	US-A-3 568 914 (H. AHLMEYER) * Abstract; figure 1 *	6	
A	---	7,10	
A	US-A-1 888 808 (J. SCHMIEDEL) * Page 1, lines 1-9; claim 1 *	8	
A	---	8	
A	US-A-4 786 355 (R.F. KONTZ) * Abstract; figures 1-4 *	8	
Y	---	2	
A	FR-A-2 529 168 (SIFAR) * Page 6, lines 8-12; figure 1 *	1,5	
	-----		
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			B 65 D B 65 B B 65 C B 31 B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 03-04-1990	Examiner ZANGHI A.
<b>CATEGORY OF CITED DOCUMENTS</b> 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 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			