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(71) Applicant:
International Clip s.n.c. di Lechner Erich & C.
20080 Vermezzo, Milano (IT)

(72) Inventor:
Lechner, Erich,
Via Carlo Cattaneo, 6/A
Milano (IT)

(74) Representative:
Siniscalco, Fabio et al
c/o JACOBACCI & PERANI S.p.A.
Via Visconti di Modrone, 7
20122 Milano (IT)

(54) Method of and pack for restocking with corrugated tape a machine for applying fasteners to bagged products

(57) In order to restock with corrugated tape a machine for applying fasteners, a pack (1) is provided in which the tape (2) is wound in a reel and held in this configuration by bands (5). A support (6a) is also provided, the ends of which are fitted with two discs (6b), (6c), one of which (6c) is removably mounted on the support. In order to apply the fasteners, the reel of corrugated tape is mounted on the support (6) of the machine once the removable disc (6c) has been removed. In this way, advantageously, the only material to be discarded when restocking the machine with tape is the bands (5).

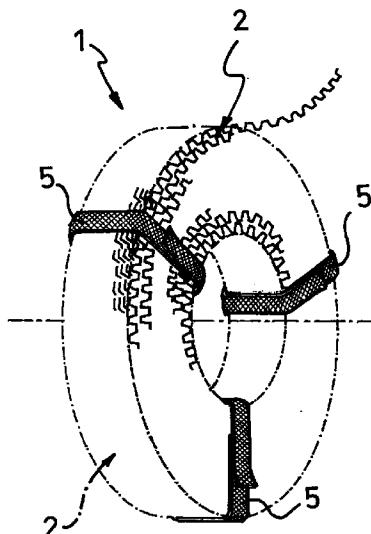


FIG.1

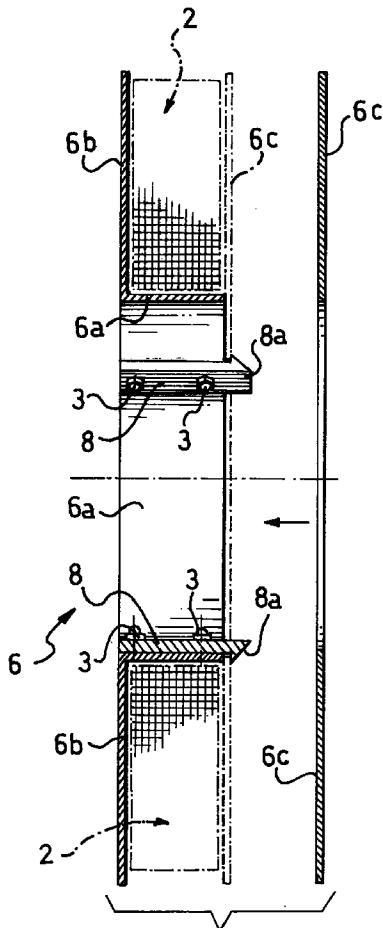


FIG.3

Description

The present invention relates to a method of restocking with corrugated tape a machine for applying fasteners to bagged products, in which machine the reel of tape is fed so as to be applied to the products by unwinding it from a support that comprises a spool around which the tape is wound and the ends of which are fitted with corresponding opposite discs.

The invention also relates to a pack of corrugated tape for implementing this method.

It would be useful, before going any further, to start by saying that, in this description and in the subsequent claims, the term "bagged products" is taken as meaning, in a general manner, those products - whether food-stuffs or otherwise - which are sold in generally hermetically sealed packets consisting of packaging which is applied so as to be in contact with the product and comprises bags or wrappers made of various materials; within the general scope of this definition, specific reference will henceforth be made to packets of bagged products of the type in which the end is closed in a sealed manner by means of fasteners consisting of metal bands, known in the art as clips.

These fasteners are applied during the production cycle by means of special machines; in short, these machines feed the metal corrugated tape, which is wound in reels on a suitable rotating support, to a fastener-applying station located downstream. The products, which are ready-prepared in the packaging to be sealed, are advanced step-wise on a conveyor belt as far as the abovementioned station where the corrugated tape is cut along a corrugation, thus producing a band which is then folded by the machine around the end of the packaging, thereby sealing the packet.

The abovementioned support for the reel of wound corrugated tape essentially comprises a spool, the ends of which have two opposite discs which enable the said tape to be contained laterally on account of the fact that, as a result of its thickness and corrugated shape, it has a certain degree of elasticity which means that in certain respects it behaves like a spring and is, therefore, difficult to hold in the reel-wound configuration.

Currently, in order to restock the fastener-applying machines, the corrugated tape is produced by winding it directly on to the support; the latter, together with the reel wound on to it, therefore has a dual function: the first is to form the pack by means of which the tape is transported from its site of production to its final destination, while the second, which has already been discussed, is to act as an element from which the tape is fed to the fastener-applying machines and which can be replaced like a cartridge once the tape has been used up.

With the aim of making the corrugated tape supports lightweight and strong and fairly inexpensive - crucial characteristics from the point of view of making them suitable for transportation and facilitating handling

and installation of the tape reels on the fastener-applying machines - these supports are predominantly made from plastic.

However, once the corrugated tape has been used up, its support becomes an item of production refuse since reusing it to wind a new tape on to it would generally involve extra expense in transporting it from the company that packages the bagged products to the corrugated tape manufacturer, costs which would make an operation of this type unfeasible in economic terms. In this respect, we need to bear in mind that the weight of the plastic supports is generally fairly small relative to their dimensions and, therefore, the costs of transporting them would be disproportionately high - especially since they are of limited economic value.

Given that, as has already been stated, the supports are made of plastic, their disposal as refuse generated by the production cycle is currently becoming more and more of a problem since, as is well known, and in response to increasing concerns about the ecological aspects of industrial production, legislation governing the disposal of industrial waste in various countries has recently been considerably amplified and reinforced, especially with regard to the disposal of plastic materials. Complying with such legislation means that companies are faced with extra costs - in some cases not insignificant costs - which duly need to be taken into consideration in order to manage production efficiently.

In the particular case of the packaging of the bagged products, therefore, if, on the one hand, reusing the plastic supports for the reels of corrugated tape is not usually feasible on account of the transportation costs involved, then the currently widespread practice of regarding these supports as disposable waste material is also no longer convenient since the costs involved in disposing of them in accordance with the legislation referred to above would cut deeply into the profitability of the aforesaid packaging cycle.

The technical problem that forms the basis of this invention is how to remedy the situation: more specifically, the invention aims to devise a method for restocking with corrugated tape a machine for applying fasteners to bagged products such as the machine referred to above, in which method the operational stages make it possible to overcome the disadvantages encountered in the prior art and pointed out previously.

This problem is solved by means of a method of the type discussed at the beginning of this description, the characteristic operational stages of which are set out in the claims below.

As disclosed above, the invention also includes a pack for implementing the method referred to, this pack also being defined in the claims appended to this description.

In order to gain a better understanding of the invention, a preferred, but not exclusive, embodiment thereof is described below by way of non-limiting example and

with the help of some drawings, in which:

- Fig. 1 shows a perspective view of a pack of corrugated tape according to the invention;
- Fig. 2 shows a perspective view of a machine for applying fasteners to bagged products employing a pack according to the invention;
- Fig. 3 shows a sectional view of a support for the corrugated tape, designed to be installed on the machine in Fig. 2.

With reference to these figures, Fig. 1 shows a pack 1 according to the invention that comprises a corrugated tape 2 of the type conventionally used to apply fasteners to bagged products; this tape is wound in a reel and held in this wound configuration by suitable means, in this case consisting of bands 5 which are closed, for example, by heat sealing or in some other way. However, these bands could easily be substituted with other fixing means such as a plastic film, for example shrink-wrap film, wrapped around the reel, or yet other means.

The internal diameter of the reel of corrugated tape is slightly greater than the external diameter of a spool 6a of a support 6 for the corrugated tape which is installed on a machine A for applying fasteners to bagged products, which machine is diagrammatically illustrated in Fig. 2; this machine is known per se - except, of course, for the support 6 - and will not therefore be discussed in any further detail in the remaining text.

In addition to the spool 6a, the support 6 includes two lateral discs 6b and 6c, the first of which is fixed while the second can be removed from the spool; more specifically, on the internal circumference of the spool 6a there are elements 8 for fixing the removable disc 6c which consist of plates situated at 120° from each other relative to the centre of the spool 6a and are attached to the latter by means of bolts 3. These plates have corresponding ends 8a that project from the spool 6a and define a groove into which the internal edge of the disc 6c snap-fastens (see Fig. 3); in this case also the elements for fixing the removable disc could be different from those shown, depending on the various options chosen to enable the disc to be quickly removed from and repositioned on the support spool.

The method according to the invention is implemented in the following stages.

Firstly, the pack of corrugated tape is formed by winding it in a reel and fastening it with the bands 5 so as to produce the pack 1 referred to above; the pack thus formed is then conveyed to the fastener-applying machine. Here the reel of corrugated tape is transferred on to the support 6: more precisely, on account of the fact that the disc 6c can be removed and that the internal diameter of the reel of corrugated tape is slightly greater than the external diameter of the spool 6a of the support, the reel of corrugated tape can be mounted on

the support itself. The bands 5 are then cut off so that the corrugated tape 2 can be unwound from the support 6 in order to be fed to the machine A. Lastly, the disc 6c is repositioned on the support 6 by snap-fastening it on to the plates 8 located on the latter so that the fastener-applying cycle can take place in a manner known per se; in fact, once the disc 6c has been attached to the rest of the support 6, the latter is functionally equivalent to those usually used in the prior art.

When the corrugated tape 2 has been used up, a new reel of corrugated tape is transferred on to the support 6.

From the description given above, it should be clear how the method of the invention solves the technical problem that forms the basis thereof: by implementing the method, it is possible to restock with corrugated tape machines for applying fasteners to bagged products and to dispense with the plastic supports on which the reel of tape to be fed to the machines was wound, supports which gave rise to the disadvantages described above.

The support 6, in which a spool is provided with two discs, at least one of which can be removed from the said spool, plays a vital role in achieving these results: indeed, it is because of this support that it is possible to use a pack for the corrugated tape which has been reduced to its essential components and has been made using the minimum amount of disposable material possible - namely, the bands 5.

Furthermore, since the support 6 is not used to transport the corrugated tape, it can be made of any material, without giving rise to the disadvantages encountered previously. In other words, it may be said that, within the method of the invention, the support 6 becomes a component of the fastener-applying machine, which means that it is possible to use a disposable pack for transporting the tape.

Lastly, among the advantages achieved by the method of the invention, it should be emphasized that it also lends itself to being used in existing machines without any modifications to these being necessary; it is quite clear how the support 6 with a removable disc can be installed without requiring any specific adjustments, but simply taking care to select its dimensions so that they are compatible with the machines for which it is intended.

Claims

- 50 1. Method of restocking with corrugated tape (2) a machine (A) for applying fasteners to bagged products and the like, in which machine the reel of corrugated tape (2) is fed so as to be applied to the products by unwinding it from a support (6) that comprises a spool (6a) around which the tape (2) is wound and the ends of which are fitted with corresponding opposite discs (6b, 6c), characterized in that it comprises the following operational stages in

combination:

- forming the support (6) such that at least one of the said discs (6b, 6c) can be removed from the spool (6a); 5
- forming a pack (1) of corrugated tape (2) in which the latter is wound in a reel and held in this configuration, and in which the internal diameter of the reel is slightly greater than the external diameter of the spool (6a) of the support (6); 10
- transferring the tape (2), still wound in a reel, on to the support (6) after having detached the removable disc (6c) from the support (6). 15

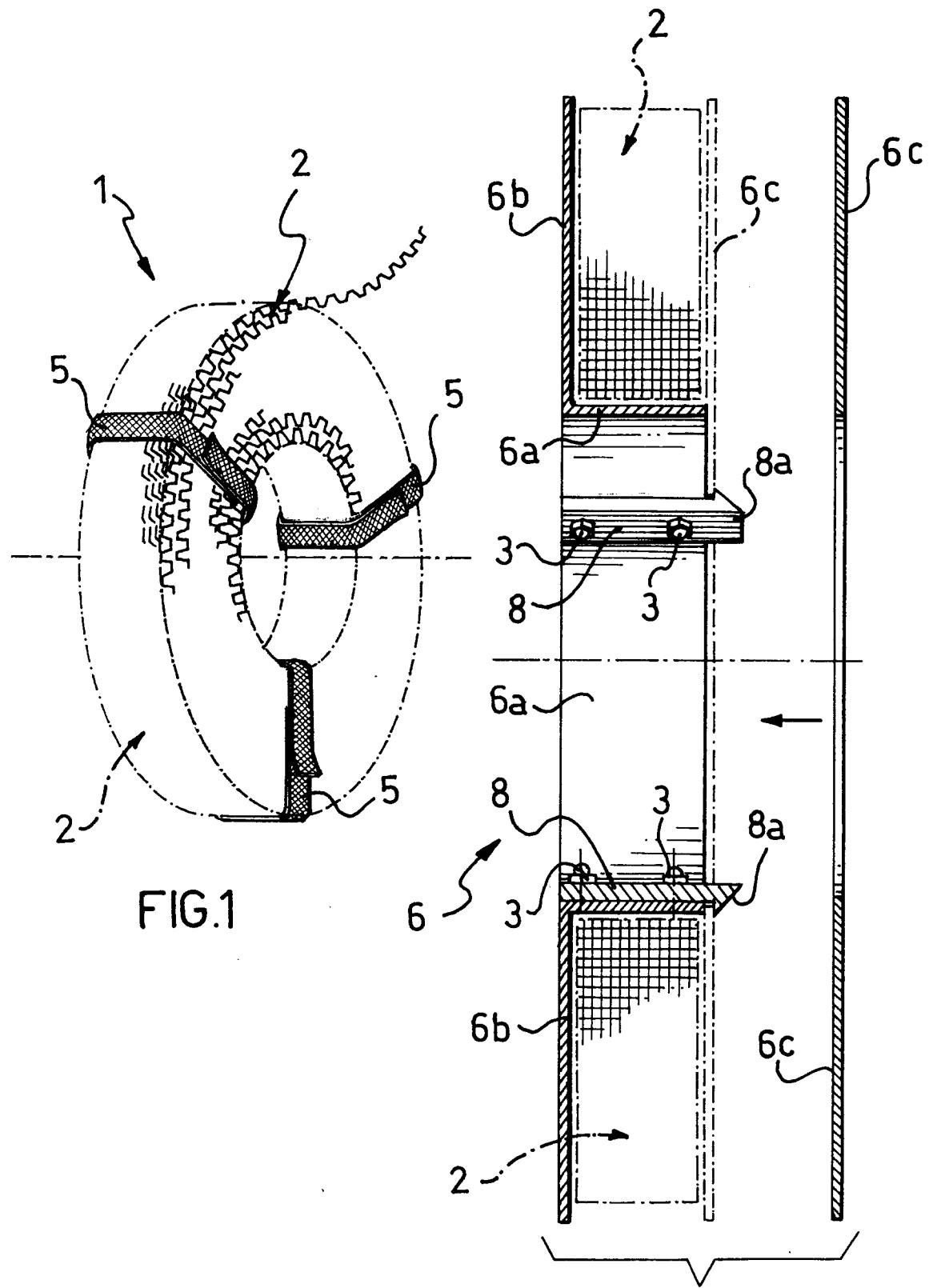
2. Method according to Claim 1, in which the removable disc (6c) snap-fastens on to the remaining part of the support (6). 20
3. Method according to Claim 1 or 2, in which the reel of corrugated tape is secured radially and the binding is undone in order to feed the tape to the machine (A). 25
4. Pack for implementing the method according to any one of Claims 1, 2, 3, comprising means (5) for keeping the tape (2) wound on the spool (6a). 25
5. Pack according to Claim 4, in which the said means consist of a plurality of bands (5) which are wrapped around the outside of the tape (2) and the spool (6a). 30
6. Pack according to Claim 4, in which the said means consist of a plastic film wrapped around the reel of corrugated tape. 35

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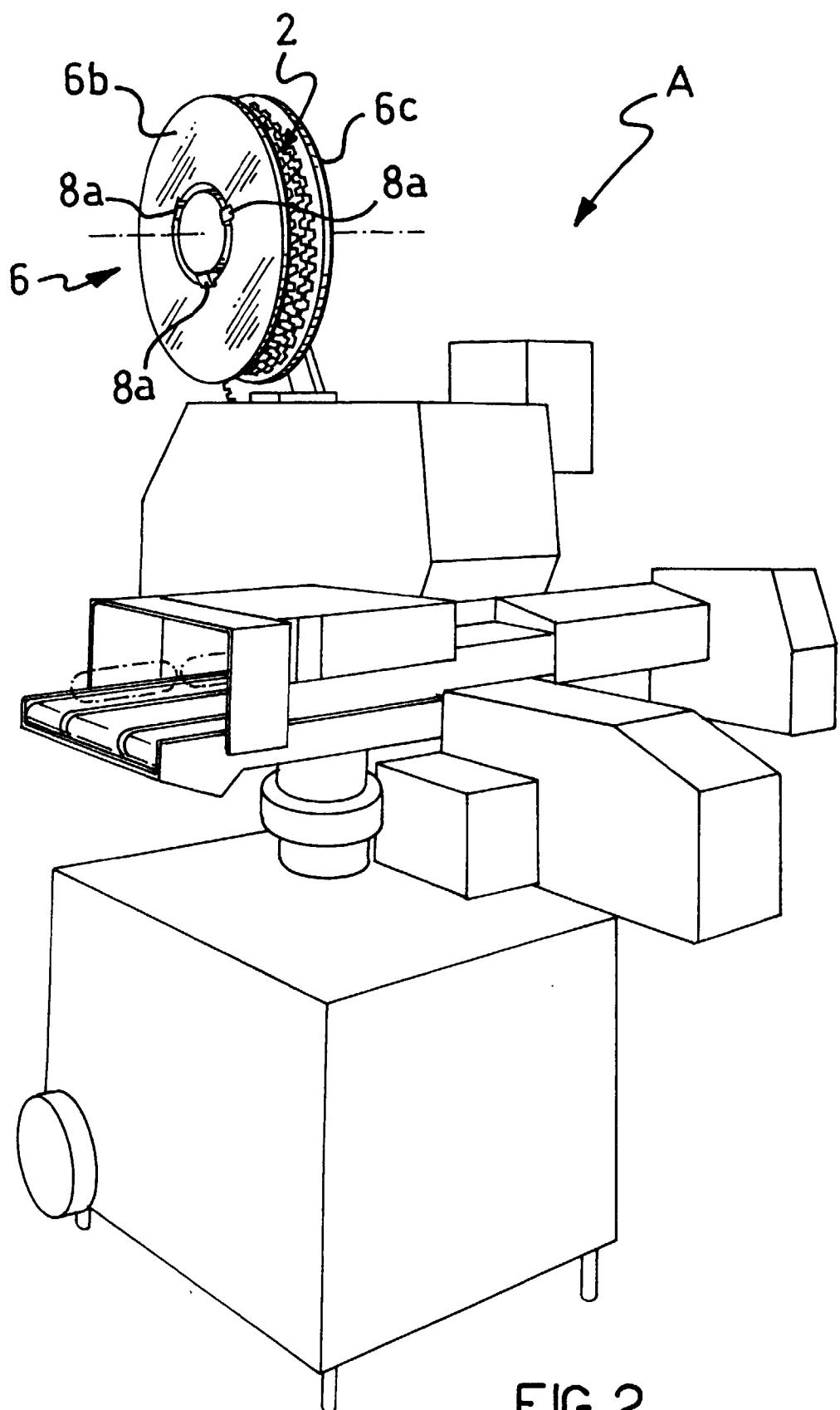


FIG.2



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EUROPEAN SEARCH REPORT

Application Number
EP 97 83 0218

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int.Cl.6)						
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim							
A	US 2 212 668 A (MIRFIELD) 27 August 1940 * the whole document * ---	1,3-6	B65H75/22 B65D85/671						
A	AU 52560 79 A (LYSAGHT) 15 May 1980 * the whole document * ---	1,3							
A	WO 91 16261 A (LINDSTRAND ULF) 31 October 1991 * figures 24A,24B,25,7B * ---	1,3-5							
A	EP 0 738 683 A (ALCATEL CABLE) 23 October 1996 * column 1, line 3 - line 24; figures 1-5 * ---	1							
A	DE 90 16 395 U (FILTHAUT) 11 April 1991 * the whole document * -----	1,2							
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.6)						
			B65H B65D B65B						
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Place of search</td> <td style="width: 33%;">Date of completion of the search</td> <td style="width: 33%;">Examiner</td> </tr> <tr> <td>BERLIN</td> <td>13 October 1997</td> <td>Béraud, F</td> </tr> </table>				Place of search	Date of completion of the search	Examiner	BERLIN	13 October 1997	Béraud, F
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<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">CATEGORY OF CITED DOCUMENTS</td> <td style="width: 50%;">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</td> </tr> <tr> <td>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</td> <td></td> </tr> </table>				CATEGORY OF CITED DOCUMENTS	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	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			
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