

(19)



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11)

EP 0 742 161 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:
13.11.1996 Bulletin 1996/46

(51) Int Cl.⁶: **B65D 77/14**

(21) Application number: **96303221.4**

(22) Date of filing: **08.05.1996**

(84) Designated Contracting States:
BE DE FR GB IT

(72) Inventor: **McMenemy, Andrew Leslie**
Birmingham, B37 5HH (GB)

(30) Priority: **12.05.1995 GB 9509664**

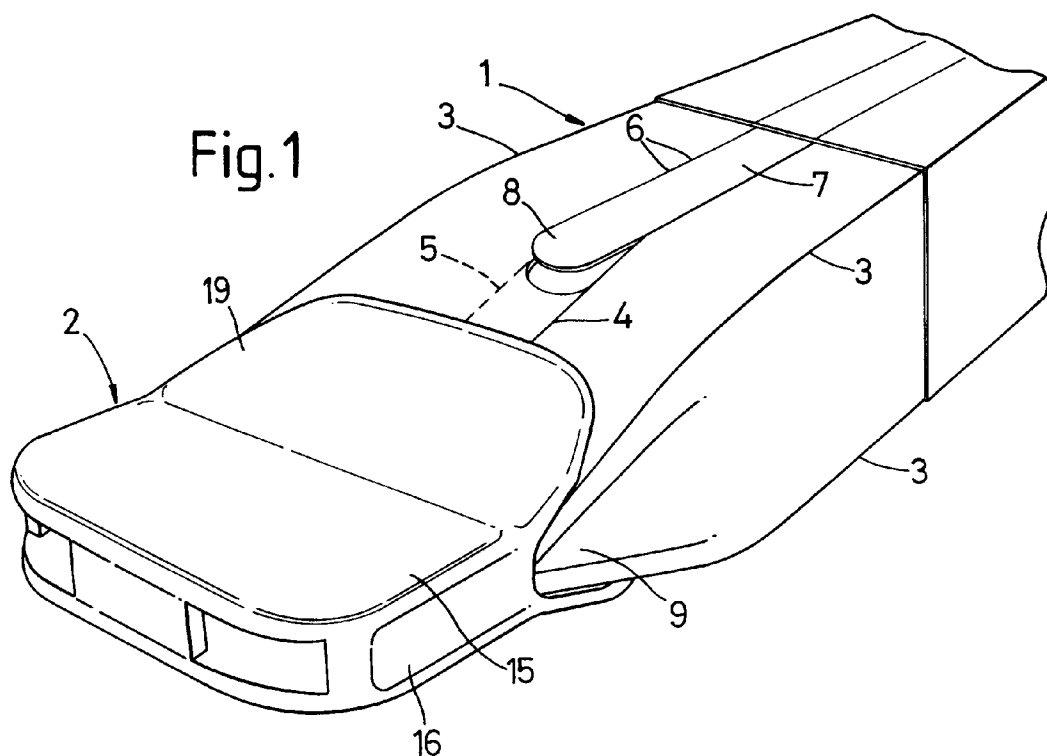
(74) Representative: **Stonehouse, Sidney William**
Barker, Brettell & Duncan
138 Hagley Road
Edgbaston
Birmingham B16 9PW (GB)

(71) Applicant: **SWISH PRODUCTS LIMITED**
Tamworth, Staffordshire B79 7TW (GB)

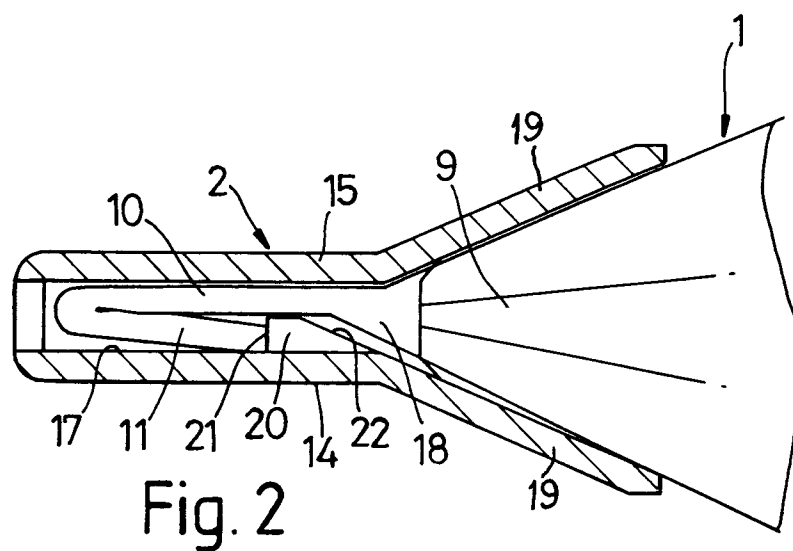
(54) Improvements relating to packaging

(57) An article, such as a curtain track, is packaged by forming a tube (1) of sheet material, e.g. pvc, inserting the article in the tube and closing at least one end of the tube by flattening the respective end portion (10), folding that portion over upon itself and then attaching a closure clip (2) to the folded part (11) to hold the tube

end closed. The closure clip has a pocket (17) in which the folded part is received and retained. Both ends of the tube may be closed in the same way. Pleats (9) formed in the wall of the tube enable the or each flattened end portion (10) to be contained within the general width of the tube. A tear strip (7) along the tube enables it to be opened for removal of the article.



EP 0 742 161 A1



Description

This invention relates to packaging of the kind, used for example for enclosing elongate articles such as curtain rails, tracks or poles, comprising a tube formed from sheet material, such as a clear sheets plastics material.

In one known form of packaging of the kind set forth the tube is made of PVC sheet which is folded or rolled into and bonded, as by welding, in the required tubular form, the article to be packed is inserted into the tube and the ends of the tube are each closed by means of a separate closure piece, usually made as a plastics moulding, which is inserted into the end and secured in place by staples. The insertion of the closure pieces into the ends of the tube and the securing by staples is done by hand which adds significantly to the time and cost of the packaging.

It is an aim of the present invention to reduce the manual work involved in closing an end of the tube of packaging of the kind set forth.

According to one aspect of the present invention a method of packaging an article is provided which comprises the steps of forming a tube of sheet material, inserting the article into the tube and is characterised by closing at least one end of the tube by flattening the respective end portion of the tube, folding the flattened end portion over upon itself and applying to the folded part a closure clip having a pocket which receives the folded part and in which retention means is provided to retain the clip on the folded part.

Each end of the tube may be closed in the manner described.

The or each end portion may be so flattened that it is still within the general width of the tube. This is readily achieved by forming pleats in opposite sides or circumferential parts of the end portion before it is flattened and folded.

The flattening, with pleats if included, and folding of the or each end portion may be done by machine.

The or each closure clip may be pushed onto the folded part of the, or each respective, flattened end portion. This is a simple operation which may be done readily by hand.

The tube may be formed of a suitable plastics sheet material, for example PVC. The sheet material may be rolled into a cylindrical, or generally cylindrical tube, or it may be folded into a tube of square, rectangular or other polygonal cross-section. Opposite side edge portions of the sheet material which are brought together in the rolled or folded form of the tube may be adhesively bonded or welded together. If the sheet material is to be folded to form the tube, the folding may be facilitated by defining fold lines, as lines of weakening, along the material.

According to a second aspect of the present invention a packaged article is provided in which the article is contained in a tube of sheet material and characterised in that at least one end portion of the tube is flattened,

folded over upon itself and has the folded part received into a pocket of a closure clip having retention means to retain the folded part therein, and thereby close the respective end of the tube.

Preferably the or each closure clip is a plastics moulding of a stiff, or relatively stiff, material, for example polypropylene. It may be of another suitable plastics material, or another material, possibly metal. The or each closure clip may be in the form of a flattened cap which fits over the folded part of the, or the respective, flattened end portion, the interior of the cap forming the pocket which contains the folded part.

The retention means in the pocket of the or each closure clip may comprise one or more teeth, prongs, lugs or other projections which engage, preferably with a snap action, with the free end edge of the material of the flattened portion of the tube at the folded part as the closure clip is applied to the folded part. This engagement once made prevents, or presents appreciable resistance to, subsequent separation of the closure clip from the folded part. Other forms of retention means may possibly be provided, for example teeth, ribs or spikes which dig into the material of the folded part to secure the closure clip on the folded part. Another possibility is to retain the folded part in the pocket by adhesive, welding or such which bonds the closure clip to the folded part.

For ease of opening the closed tube for removal of the packaged article, a tear strip may be provided in the material of the tube. The tear strip may be defined in a known manner and may extend along at least a substantial part of the length of the tube. It may have a pull tab which protrudes from the exterior of the tube to be readily accessible for tearing the tear strip from the tube.

A label, which may include instructions on the back for use, application and such of the packaged article, may be applied to the tube as a sleeve fitting closely around the tube. Such a tube may also include a tear strip for opening the label to remove it from the tube. In this arrangement, if the tube has a tear strip, the tear strip of the label may be arranged to be torn from the label as the tear strip of the tube is torn from the tube, so that the two items are opened in one operation. For this to be done the tear strip of the sleeve may be superimposed on the tear strip of the tube, and a lead end of the sleeve's tear strip may be attached to the tear strip of the tube, for example by adhesive or double-sided tape or sponge material.

According to a third aspect of the present invention there is provided a closure clip characterised in that it is adapted for use in the method of packaging according to the first aspect of the invention, or in the packaged article according to the second aspect of the invention, herein set forth, and has a pocket to receive the folded part of a flattened end portion of the tube and retention means in the pocket to retain the clip on the folded part.

An embodiment of the invention will now be described, by way of example only, with reference to the

accompanying drawings, in which

Figure 1 is a perspective view of one end of a packaged article in accordance with the second aspect of the invention and packaged by the method according to the first aspect of the invention;

Figure 2 is a partial section through the end of the packaged article, and

Figure 3 is a plan view of an end of a tube used in the packaging of the article of Figures 1 and 2.

In this embodiment the invention will be described as applied to a packaged curtain track. The track itself is not shown; it is of a known plastics form with fittings for mounting it for use and attachment of a curtain, or curtains. The track is packed in a tube 1 made of clear sheet PVC material closed at its opposite ends by closure clips 2, only one of which is shown.

The tube 1 is of square cross-section and is longer than the track it is to receive. A length of the sheet PVC material is folded lengthways into the square tubular shape. Parallel score lines 3 are formed along the sheet to aid the folding of the sheet. Opposite longitudinal side edge portions 4, 5 of the sheet, Figure 3, overlap centrally of one side wall of the tube 1 when the folding is completed and are welded together. Alongside the overlapped and secured side edge portions score lines 6 are formed in the sheet material to define a tear strip 7 which extends along the tube from near one end of the tube, where the tear strip has a pull tab 8, to the other. The pull tab 8 protrudes from the exterior of the tube so that it can be gripped readily for pulling the tear strip away from the tube.

The tube 1 is left open at both ends for insertion of the curtain track. The curtain track is inserted leaving an end portion of the tube extending beyond each end of the track. Each end of the tube 1 is then formed with inward pleats 9 in two opposite side walls (other than the side wall containing the tear strip 7) of the respective end portion. Next each end portion is flattened, 10, to sandwich the pleated side walls between the other two side walls, and the flattened end portion is then folded back upon itself, as at 11, Figure 2, about a transverse crease line 12 near its end edge 13. Because of the inward pleats 9 the flattened and folded end portion 10 retains the same width parallel to the folded part 11 as the remainder of the tube 1. The pleating of the side walls and flattening and folding of the end portions 10 is automatically done by machine. When the flattened end portions 10 have been folded the closure clips 2 are fitted to the folded parts 11 to hold the tube ends closed.

Each closure clip 2 is a plastics moulding, preferably of polypropylene. It is formed as a flattened cap comprising two opposed, generally rectangular, parallel side walls 14, 15 joined together at the two ends and one side of their rectangular shapes by an apertured periph-

eral wall 16, so that a pocket 17 is defined in the clip having a mouth 18 between the unjoined sides of the side walls. The side walls 14, 15 have extensions 19 which provide a flared entry to the mouth 18. The depth of the pocket 17 from the mouth 18 is greater than the extent by which the folded part 11 of each flattened end portion 10 of the tube is folded over but otherwise the pocket is dimensioned to receive a respective one of the flattened end portions and its folded part 11 as a close fit. One side wall 14 has a rib-like projection 20, Figure 2, on its inside surface which extends transversely of the pocket parallel to the mouth 18 and presents an abutment face 21, normal to the side wall, facing away from the mouth and projecting approximately half way across the pocket towards the opposite side wall 15. The projection 20 has a ramp face 22 nearest the mouth, sloping away from the mouth.

The closure clips 2 are fitted to the flattened end portions 10 by hand. Each clip is pushed on to the respective end portion 10 with the folded part 11 adjacent to the side wall 14 having the projection 20, the end portion entering into the pocket 17 until the folded part 11 has passed the projection. There is sufficient resilience in the plastics materials of the tube and clip to enable the flattened end portion 10 and folded part 11 to be squeezed past the projection. Once the folded part has been pushed beyond the projection 20 the relaxation of the tube and clip material causes the end edge 13 of the folded part to snap into engagement with the abutment face 21 of the projection. This then holds the flattened end portion and folded part securely in the pocket of the clip against removal, and so the tube end is held firmly closed. The curtain track is thus fully enclosed in the tube.

A label 23 of card or paper is wrapped around an intermediate section of the length of the tube and its ends overlapped and bonded together so that it forms a close-fitting sleeve over the tube. A tear strip 24 defined along the label 23 by score lines directly overlies and extends parallel with the tear strip 7 of the tube 1. A lead end of the label's tear strip 24 nearest to the pull tab 8 of the tube's tear strip is bonded by a spot of adhesive, not shown, to the tube's tear strip. This spot of adhesive is the only bonded connection between the label and tube. Fitting and operation instructions for the curtain track may be printed on the inside of the label.

In order to open the tube for removal of the curtain track the pull tab 8 is simply pulled to tear the tear strip 7 away from the tube, opening the tube along its length. As the tear strip is drawn away from the tube at the label 23 the label's tear strip is caused to be pulled away from the label automatically as well. The label may then fall away from the opened tube.

Closing of the tube by the closure clips is a quick and easy manual operation. The closure clips are relatively inexpensive to manufacture. A saving in time and cost in closing the tube can consequently be obtained over the known closure arrangement described. Subse-

quent opening of the tube to remove its contents is also easily effected, as will be understood.

Claims

1. A method of packaging an article comprising the steps of forming a tube (1) of sheet material, inserting the article into the tube and characterised by closing at least one end of the tube (1) by flattening the respective end portion (10) of the tube, folding the flattened end portion (10) over upon itself and applying to the folded part (11) a closure clip (2) having a pocket (17) which receives the folded part (11) and in which retention means (20) is provided to retain the clip (2) on the folded part.
2. A method according to Claim 1 characterised in that each end of the tube (1) is closed in the manner of the said one end.
3. A method according to Claim 1 or Claim 2 characterised in that pleats (9) are formed in opposite sides or circumferential parts of the or each end portion (10) before the end portion is flattened and folded, thereby to contain the flattened end portion (10) within the general width of the tube (1).
4. A method according to any preceding claim characterised in that opposite side edges (4) of the sheet material in the formed tube (1) are adhesively bonded or welded together.
5. A method according to any preceding claim characterised in that the tube (1) is of polygonal cross-section, the sheet material being formed with fold lines (3) about which the material is subsequently folded to form the tube.
6. A packaged article in which the article is contained in a tube (1) of sheet material and characterised in that at least one end portion (10) of tube is flattened, folded over upon itself and has the folded part (11) received into a pocket (17) of a closure clip (2) having retention means (20) to retain the folded part (11) therein, and thereby close the respective end of the tube (1).
7. A packaged article according to Claim 6 characterised in that both ends of the tube (1) are closed in the manner of said one end.
8. A packaged article according to Claim 6 or Claim 7 characterised in that the or each flattened end portion (10) is contained within the general width of the tube (1).
9. A packaged article according to any of Claims 6 to

8 characterised in that the or each closure clip (2) is a plastics moulding of a stiff material.

10. A packaged article according to any of Claims 6 to 9 characterised in that the or each closure clip (2) is in the form of a flattened cap which fits over the folded part (11) of the, or the respective, flattened end portion (10), the interior of the cap forming the pocket (17) which contains the folded part.
11. A packaged article according to any of Claims 6 to 10 characterised in that the retention means (20) in the pocket (17) of the or each closure clip (2) comprises one or more projections (20) which engage with the free end edge (13) of the material of the flattened end portion (10) of the tube at the folded part (11) as the closure clip is applied to the folded part, thereby to retain the clip on the folded part.
12. A packaged article according to any of Claims 6 to 10 characterised in that the retention means (20) in the pocket (17) of the or each closure clip (2) comprises teeth, ribs or spikes which dig into the material of the folded part (11), thereby to secure the closure clip on the folded part.
13. A packaged article according to any of Claims 6 to 10 characterised in that the or each folded part (11) is retained in the pocket (17) of the, or the respective, closure clip (2) by bonding of the folded part in the pocket.
14. A packaged article according to Claim 10 in which the or each closure cap (2) comprises two opposed, generally rectangular, parallel side walls (14, 15) joined together at two ends and one side of their rectangular shapes by a peripheral wall (16) so as to define the pocket (17) which has a mouth (18) between the other side of the rectangular shapes of the side walls (14, 15).
15. A packaged article according to Claim 14 characterised in that the side walls (14, 15) have extensions (19) which provide a flared entry to the mouth (18).
16. A packaged article according to Claim 14 or Claim 15 characterised in that one side wall (14) of the or each closure cap (2) has a rib-like projection (20) on its inside surface which extends transversely of the pocket parallel to the mouth (18), has a ramp face (22) nearest to the mouth sloping away from the mouth and an abutment face (21) facing away from the mouth (18) with which the free end edge (13) of the material of the respective flattened end portion (10) of the tube (1) at the folded part (11) engages to retain the closure clip (2) on the folded part.

17. A packaged article according to any of Claims 6 to 16 characterised in that a tear strip (7) is provided in the sheet material of the tube (1) for opening the tube for removal of the article.
- 5
18. A packaged article according to Claim 17 characterised in that a label (23) is applied to the tube (1) as a sleeve around the tube and includes a tear strip (24) arranged to be torn from the label as the tear strip (7) of the tube is torn from the tube.
- 10
19. A packaged article according to any of Claims 6 to 18 characterised in that the article is a curtain track.
- 15
20. A closure clip characterised in that it is adapted for use in a method of packaging according to any of Claims 1 to 5, or in a packaged article according to any of Claims 6 to 19, having a pocket (17) to receive the folded part (11) of a flattened end portion (10) of the tube (1) and retention means (20) in the pocket to retain the clip (2) on the folded part (11).
- 20

25

30

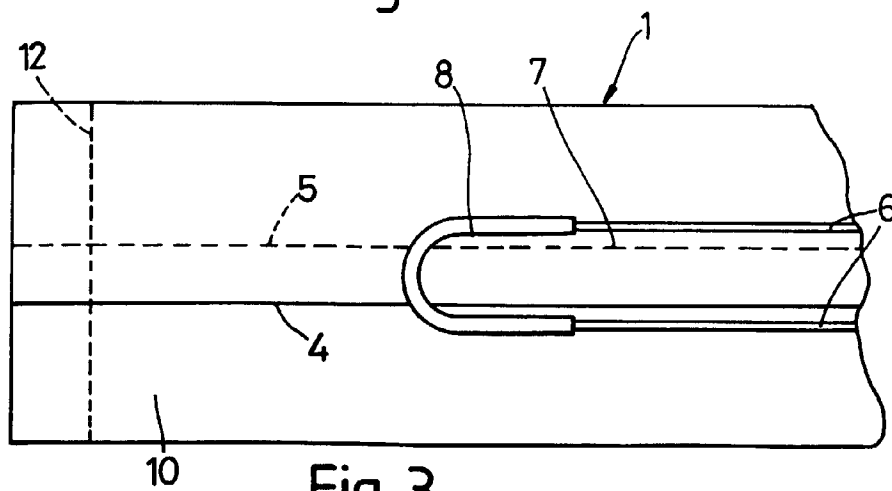
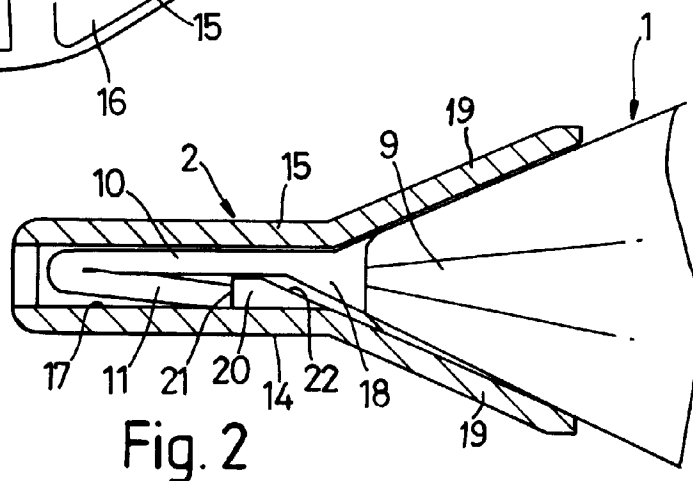
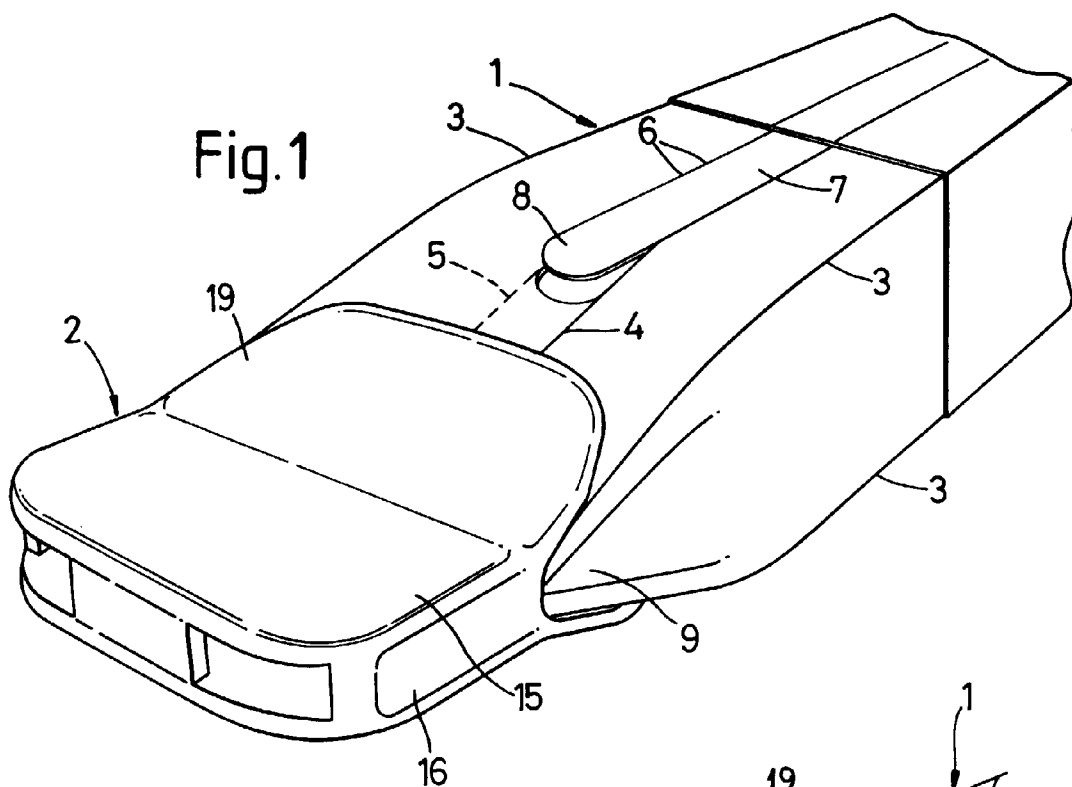
35

40

45

50

55





European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 96 30 3221

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	DE-U-88 05 922 (SETTMECKER-METALLWAREN GMBH) * claims 1,2; figure *	1,6,19	B65D77/14
A	US-A-4 040 562 (WARD ET AL) * abstract; figures *	1,6,20	
A	DE-A-32 08 495 (EMAG MASCHINENFABRIK GMBH)		
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			B65D B65B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 23 July 1996	Examiner Smith, C
CATEGORY OF CITED DOCUMENTS 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			

EPO FORM 1503 03.92 (P04C01)