



AU9461175

**(12) PATENT ABRIDGMENT (11) Document No. AU-B-61175/94**  
**(19) AUSTRALIAN PATENT OFFICE (10) Acceptance No. 680474**

- (54) Title  
**INTERCONNECTED PLASTIC BAGS CHARGING APPARATUS AND METHOD**
- International Patent Classification(s)  
(51)<sup>5</sup> **B65D 033/24 B31B 027/00 B65B 043/12 B65D 033/34**  
**B65D 075/42**
- (21) Application No. : **61175/94** (22) Application Date : **21.02.94**
- (87) PCT Publication Number : **WO94/19250**
- (30) Priority Data
- (31) Number (32) Date (33) Country  
**245979 23.02.93 NZ NEW ZEALAND**
- (43) Publication Date : **14.09.94**
- (44) Publication Date of Accepted Application : **31.07.97**
- (71) Applicant(s)  
**MINIGRIP FLEXIBLE PACKAGING LIMITED**
- (72) Inventor(s)  
**NEILL PETER GILLESPIE; MALCOLM ALEXANDER CROWE**
- (74) Attorney or Agent  
**COLLISON & CO , GPO Box 2556, ADELAIDE SA 5001**
- (56) Prior Art Documents  
**US 4665552**  
**US 4637060**  
**US 4630311**
- (57)

A method of charging and apparatus for charging the claimed series of interconnected bags are also claimed.

**CLAIM**

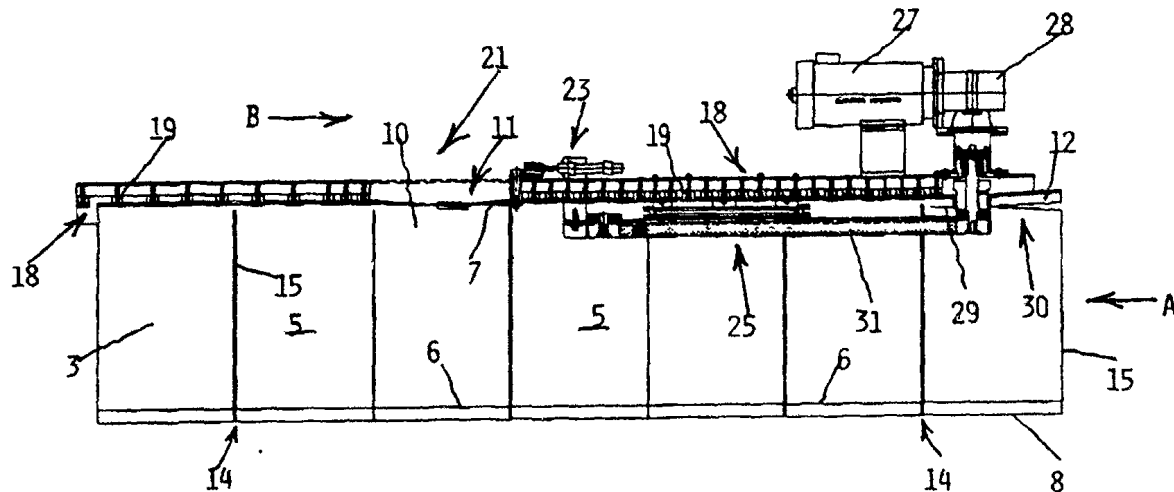
1. A series of bags each having engaged recloseable elements disposed adjacent what will become tops of the bags, side edges of the bags being formed by heat seals and associated severing which separate the bags from one another except for a continuous strip including a substantially continuous support rail extending along what will become bottom extremities of the bags, the edge forming seals also sealing the edges of a fold of the bag forming material which extends between the engaged recloseable elements to form the tops of the bags.



INTL

<p>(51) International Patent Classification 5 :                  B65D 33/24, 33/34, 75/42, B65B 43/12,                  B31B 27/00</p>	<p>A1</p>	<p>(11) International Publication Number: <b>WO 94/19250</b>                  (43) International Publication Date: 1 September 1994 (01.09.94)</p>
<p>(21) International Application Number: PCT/NZ94/00012                  (22) International Filing Date: 21 February 1994 (21.02.94)                  (30) Priority Data:                  245979 23 February 1993 (23.02.93) NZ                  (71) Applicant (for all designated States except US): MINIGRIP FLEXIBLE PACKAGING LIMITED [NZ/NZ]; 6 Ron Driver Place, East Tamaki, Auckland 1701 (NZ).                  (72) Inventors; and                  (75) Inventors/Applicants (for US only): GILLESPIE, Neill, Peter [NZ/NZ]; 268 Point View Drive, Auckland 1701 (NZ). CROWE, Malcolm, Alexander [NZ/NZ]; 33 Fenton Street, Papatoetoe, Auckland 1701 (NZ).                  (74) Agent: NEWNHAM, Ross, Andrew; 12th floor, 48 Quay Street, Auckland 1001 (NZ).</p>		<p>(81) Designated States: AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, ES, FI, GB, GE, HU, JP, KP, KR, KZ, LK, LU, LV, MG, MN, MW, NL, NO, NZ, PL, PT, RO, RU, SD, SE, SK, UA, US, UZ, VN, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).</p> <p>Published                  With international search report.</p> <p style="font-size: 2em; text-align: center;">680474</p>

(54) Title: INTERCONNECTED PLASTIC BAGS CHARGING APPARATUS AND METHOD



(57) Abstract

A series of interconnected bags (3) and a method and apparatus for the manufacturing and charging thereof. A series of bags (3) are blow formed from plastics film tube (5) which integrally incorporates the recloseable elements (6) adjacent what will become a top (8) of each bag (3). The plastic film tube (5) is longitudinally slit opposite the recloseable elements (6) to provide connecting strips (12) extending along each side of what also becomes open bottoms (10) of the bags (3). Support rails (7) are provided, preferably integrally, on each strip (12). The recloseable elements (6) are engaged with one another prior to transverse seals (13) and severing cuts (14) being formed at bag forming intervals along the film material (5). The seals (13) and cuts (14) extend from the tops (8) of the bags (3) to the strips (12). The engaged recloseable elements (6) are thus enclosed and cutting the top (8) of a bag (3) is necessary to access the recloseable elements (6). The support rails (7) enable the bags (3) to be suspended bottom (10) uppermost and conveyed through a charging and sealing apparatus. Following charging the strips (12) are removed to separate the bags (3) therefrom and from one another.

TITLE: INTERCONNECTED PLASTIC BAGS CHARGING APPARATUS AND METHOD.

#### TECHNICAL FIELD

5 This invention relates to a series of interconnected plastics bags incorporating recloseable elements and an apparatus and method for the automatic charging and sealing thereof. In particular the invention relates to such a series of bags adapted for bottom filling and which are linked by a continuous strip adapted to support the bags during a charging process and provide automatic separation following the charging and sealing thereof.

#### 10 BACKGROUND ART

15 Plastic bags incorporating recloseable elements including bags interconnected in a series to assist automatic charging are well known. Also various apparatus is available and known for the automatic charging of such interconnected bags. US Patents 4,665,552, 4630311, 4514962 relate to such interconnected bags and charging apparatus. A problem can arise in charging such bags with, in particular, detritus or similar fine ground matter from the top as some of the charge may lodge in or on the recloseable elements hindering their operation. A further problem can be that with such a recloseable bag evidence of tampering, such as unauthorised access via the recloseable elements, is not provided for. An object of this invention is to provide a series of interconnected bags which it is envisaged will overcome or at least alleviate the aforesaid problems. Further, it is envisaged that the associated charging apparatus and method will provide a particularly effective way of achieving these desired objects.

#### 20 DISCLOSURE OF INVENTION

25 According to a first aspect of this invention there is provided a series of bags each having engaged recloseable elements disposed adjacent what will become tops of the bags, side edges of the bags being formed by heat seals and associated severing which separate the bags from one another except for a continuous strip including a substantially continuous support rail extending along what will become bottom extremities of the bags, the edge forming seals also sealing the edges of a fold of the bag forming material which extends between the engaged recloseable elements to form the tops of the bags.

30 A series of bottom opened interconnected bags having engaged recloseable elements adjacent what, following charging through and sealing of a bag bottom, will become a top of the bag



comprising a continuous strip interconnecting the bags along bottom opening defining extremities of opposing sides of the bags, each strip including a substantially continuous support rail by which the bags in a bottom uppermost and open mode can be supported during charging, the support rails being appropriately spaced from the conjunctions of the strips with the bottom opening defining extremities of the bags to provide a bag of a required volume following charging and then sealing the bottom openings of the bags while they remain supported on the support rails prior to severing of the bags from the strip, the side edges of the bags being formed by heat seals and associated severing, which save for the continuous strips, separate the bags from one another, the edge forming seals being disposed transversely of parent plastics material the edge forming seals thus also sealing the edges of a fold of the parent material which extends over the recloseable elements to enclose the recloseable elements.

According to a third aspect of this invention there is provided a method of manufacturing a series of bottom opened interconnected bags having engageable recloseable elements comprising the steps of blow forming a tube of parent bag forming material incorporating recloseable elements adjacent what will become a top of the bags and, substantially opposite the recloseable elements and bordering what will become the bottom of the bags, a section which will form continuous strips carrying a substantially continuous support rail, the strips connecting the bags, engaging the recloseable elements together either before or after slitting the tube longitudinally along the connecting strip forming section to form a connecting strip to each side thereof and applying at bag forming intervals transversely disposed heat seals and associated severing extending across the parent material except for the connecting strips.

According to a fourth aspect of this invention there is provided a method of charging a series of interconnected bags as described above comprising the steps of providing, if not already provided, a substantially continuous support rail for each of the strips from which the series of bags can be suspended bottom uppermost, advancing the series of bags through a charging station, at which the bottom of each bag is opened and a charge inserted, to a sealing station, at which the bottom of the bags are sealed and then transporting the bags to severing means and severing the bags from the interconnecting strips.

According to a fifth aspect of this invention there is provided an apparatus for charging a series of bottom opened interconnected bags provided with support rails as described above comprising a support track for each of the strips and along which a series of such bags can be

advanced through a charging station to a sealing station comprising pinch operative sealing elements, at the charging station a pair of arms being mounted to be engageable one with each of the opening defining sides of the bags to space them apart to individually open each bag and support same during charging thereof, the apparatus then transporting the bags to severing means downstream of the sealing station and which severs the bags from the interconnecting strips.

#### BRIEF DESCRIPTION OF THE DRAWINGS

Fig 1 is a side view, partly schematic, of three interconnected bags (representing a continuous series of such bags) formed from a parent tube of plastics film material, and

Fig 2 is a cross-sectional view of a bag depicted in Fig 1, and

Fig 3 is a side view of a series of bags being conveyed through a charging apparatus which includes a charging station, sealing means and severing means, and

Fig 4 and 5 are an end view, in the direction of arrow A on Fig 3, and a plan view respectively of the apparatus of Fig 3, and

Fig 6 is a side view of the charging station, and

Fig 7 is a plan view of the charging station with opening arms thereof near closed, and

Fig 8 is a similar view to Fig 7 showing the opening arms open, and

Figs 9 and 10 are an end view and a perspective view of the opening arms and their means of engaging and supporting bags.

#### BEST MODE FOR CARRYING OUT THE INVENTION

A series of interconnected bags 3 are preferably fabricated from a parent film tube 5 of blown plastics film materials. Preferably the tube film material 5 integrally incorporates recloseable profiles 6a and 6b and integral support rails 7 although it is envisaged the support rails 7 may be added later. With folding or collapsing of the tube material 5 into a substantially two layered band, as depicted in Figs 1 and 2, the recloseable profile 6a and 6b are engaged with one another. The profiles 6a and 6b may be of any required known form comprising basically a male element 6a re-engageable within a female element 6b. The folding of the tube film material 5 provides that the recloseable profile 6a and 6b are adjacently set in from one fold 8. As will be apparent from the following description eventually the recloseable profiles 6a and 6b and the associated section of the film material 5 forming fold 8 will become the tops 9 of bags 3.

The support rails 7 are disposed adjacent the opposing "fold" 10 of the tube material 5. More particularly, following blow forming and as depicted the tube film 5 is longitudinally slit on "fold" line 10 between the support rails 7. This provides open bottoms 11 enabling  
5 access to the individual bags 3. The slitting of fold 10 also forms interconnecting strips 12, one associated with each rail 7, and which following formation of the individual bags 3 as hereinafter described connect the bags 3 in a series as depicted.

At required bag 3 forming spacings transversely disposed heat seals 13 and associated  
10 severing cuts 14 are applied to the parent film 5 to form the side edges 15 of the bags 3 and separate, save for the connecting strips 12, the bags 3 from one another. The seals 13 and cuts 14 extend transversely in from the top 9 forming fold 8 of the film material 5 and terminate at the strips 12. More particularly, the seals 13 and cuts 14 terminate marginally  
15 beyond an intended bottom, represented by line 16 on Fig 1, of the bags 3. As described hereinafter following charging of the bags a bottom closing seal 17 is formed adjacent the bottom line 16 and the bags 3 severed from the strips 12. The severing is along line 16 as to intersect with cuts 14 thereby providing for the separation of the bags 3 from one another and the strips 12.

20 The side edge seals 13 extend transversely across the recloseable profiles 6a and 6b and the associated folded section of the film material 5 forming the tops 8. Thus the recloseable profiles 6a and 6b are sealed-off by the folded top 8 and the seals 13. This provides that in a completed bag 3 the folded top 8 must be cut to access the recloseable profiles 6a and 6b thereby providing security against tampering.

25 Thus a series of bags 3 are provided interconnected by strips 12 extending along what will become the bottom of the bags 3. Each strip 12 carries a support rail 7 the purpose of which is to support the series of bags 3 on tracking means 18 extending through a charging and sealing apparatus as depicted in Figs 3 - 5 inclusively and now more particularly described.

30 The series of bags 3 are conveyed through the charging and sealing apparatus in the direction of arrow B on Fig 3. The bags 3 are supported bottom uppermost by rails 7 seating over tracking means 18. Preferably tracking means 18 is formed by a pair of parallel series of adjacently spaced apart rollers 19 mounted on vertically disposed axis, each roller

19 incorporating at a lower end thereof an annular rib 20 on which the rails 7 rest. The bags 3 are conveyed to a charging station 21 at which the rails 7 slide into and are gripped by opening arms 22. As depicted in Fig 8, arms 22 are operable by a suitable mechanism 23 to extend laterally to bottom open individual bags 3 in readiness for charging in known manner, for example, from a chute (depicted schematically by ring 24 on Fig 5) disposed above charging station 21. A maximum charge volume is represented by line 32 on Fig 1. Following charging bags 3 are conveyed along tracking means 18 to a sealing apparatus 25. Sealing apparatus 25 preferably comprises a pair of laterally positioned and operative heated bars 26 which can be impinged inwardly onto the bags 3 to form the bottom seal 17 as described above. Thereafter the bags 3 are conveyed to a severing apparatus comprising a horizontally extending blade 29 disposed to intersect the bags on line 16 to sever the strips 12 from the bags 3 as depicted at arrow 30. Preferably the bags 3 are driven along the tracking means 18 by a pair of continuous belts 31 disposed to either side of the bags 3 to impinge the bags therebetween and preferably extending from the sealing means 25 through to the severing blade 29. An electric motor 27 and associated drive train 28 are provided to rotate the belts 31 to draw the bags 3 through the apparatus.

## THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A series of bags each having engaged recloseable elements disposed adjacent what will become tops of the bags, side edges of the bags being formed by heat seals and associated severing which separate the bags from one another except for a continuous strip including a substantially continuous support rail extending along what will become bottom extremities of the bags, the edge forming seals also sealing the edges of a fold of the bag forming material which extends between the engaged recloseable elements to form the tops of the bags.

2. A series of bottom opened interconnected bags having engaged recloseable elements adjacent what, following charging through and sealing of a bag bottom, will become a top of the bag comprising a continuous strip interconnecting the bags along bottom opening defining extremities of opposing sides of the bags, each strip including a substantially continuous support rail by which the bags in a bottom uppermost and open mode can be supported during charging, the support rails being appropriately spaced from the conjunctions of the strips with the bottom opening defining extremities of the bags to provide a bag of a required volume following charging and then sealing the bottom openings of the bags while they remain supported on the support rails prior to severing of the bags from the strip, the side edges of the bags being formed by heat seals and associated severing, which save for the continuous strips, separate the bags from one another, the edge forming seals being disposed transversely of parent plastics material the edge forming seals thus also sealing the edges of a fold of the parent material which extends over the recloseable elements to enclose the recloseable elements.

3. A series of bottom opened interconnected bags as claimed in claim 2 wherein the parent plastics material comprises a tube of plastics material integrally incorporating the strips and the reclose elements.

4. A series of bags as claimed in any one of the preceding claims wherein the support rails are integrally moulded with their associated strips.

AUSTL  
 2002  
 17000

5. A method of manufacturing a series of bottom opened interconnected bags having engageable recloseable elements comprising the steps of blow forming a tube of parent bag forming material incorporating recloseable elements adjacent what will become a top of the bags and, substantially opposite the recloseable elements and bordering what will become the bottom of the bags, a section which will form continuous strips carrying a continuous support rail, the strips connecting the bags, engaging the recloseable elements together either before or after slitting the tube longitudinally along the connecting strip forming section to form a connecting strip to each side thereof and applying at bag forming intervals transversely disposed heat seals and associated severing extending across the parent material except for the connecting strips.

6. A method of manufacturing a series of bags as claimed in claim 5 wherein the support rail comprises an integral bag support rail on each connecting strip.

7. A method of charging a series of interconnected bags as claimed in any one of claims 1 to 4 comprising the steps of providing, if not already provided, a substantially continuous support rail for each of the strips from which the series of bags can be suspended bottom uppermost, advancing the series of bags through a charging station, at which the bottom of each bag is opened and a charge inserted, to a sealing station at which the bottoms of the bags are sealed and then transporting the bags to severing means and severing the bags from the interconnecting strips.

8. An apparatus for charging a series of bottom opened interconnected bags provided with support rails as claimed in any one of claims 1 to 4 comprising a support track for each of the strips and along which a series of such bags can be advanced through a charging station to a sealing station comprising pinch operative sealing elements, at the charging station a pair of arms being mounted to be engageable one with each of the opening defining sides of the bags to space them apart to individually open each bag and support same during charging thereof, the apparatus then transporting the bags to severing means downstream of the sealing station and which severs the bags from the interconnecting strips.

9. An apparatus for charging a series of bottom opened interconnected bags as claimed in claim 8 wherein the bags are driven along the tracking means by a pair of continuous belts disposed to either side of the bags to impinge the bags therebetween.

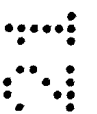
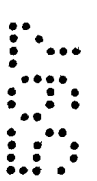
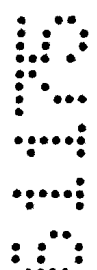
10. A series of bags substantially as herein described with reference to the  
5 accompanying drawings.

11. A method of manufacturing a series of bags substantially as herein described with reference to the accompanying drawings.

12. A method of charging a series of bags substantially as herein described with reference to the accompanying drawings.

DATED this 21st day of May 1997

MINIGRIP FLEXIBLE PACKAGING LIMITED  
By their Patent Attorneys  
COLLISON & CO



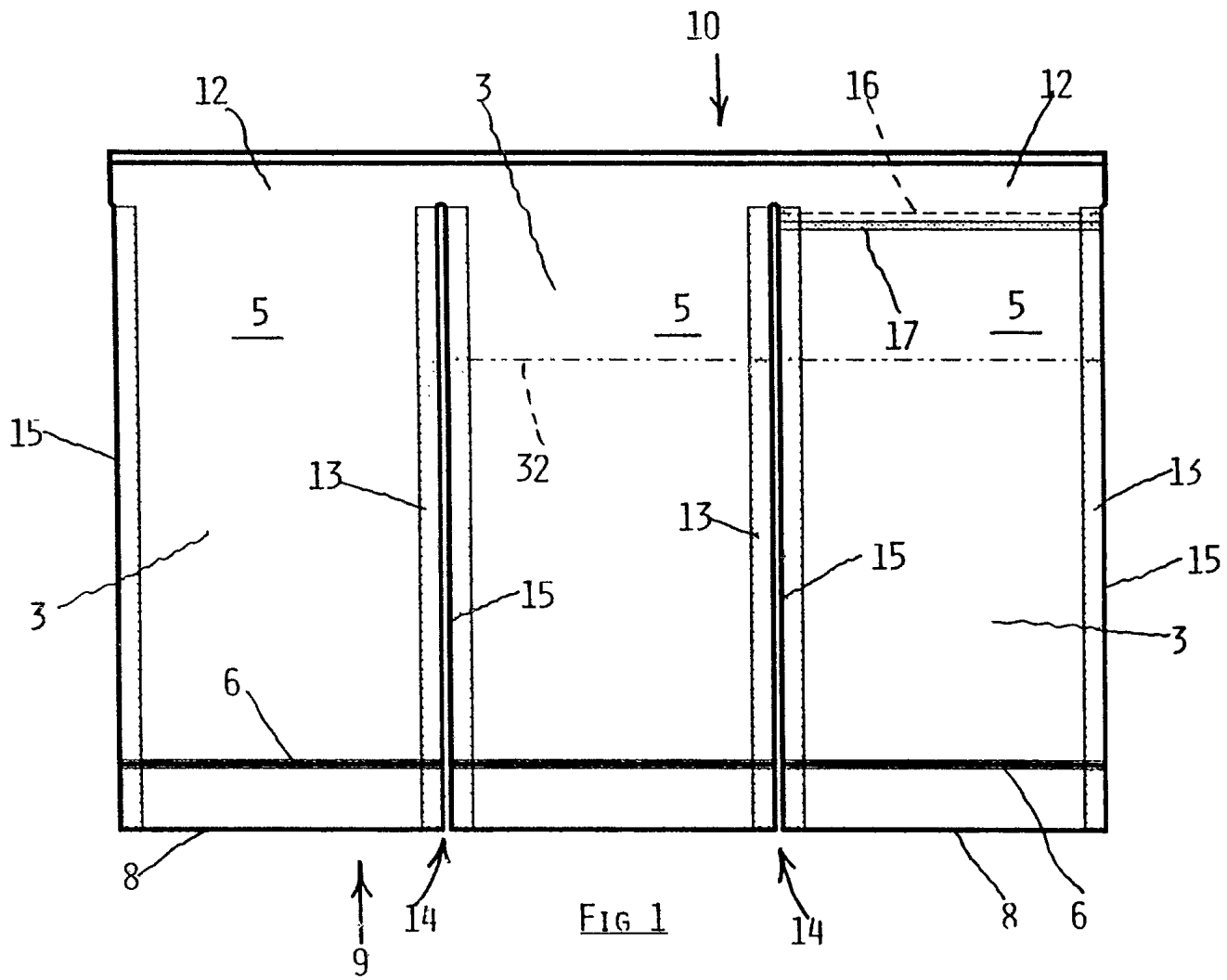


FIG 1

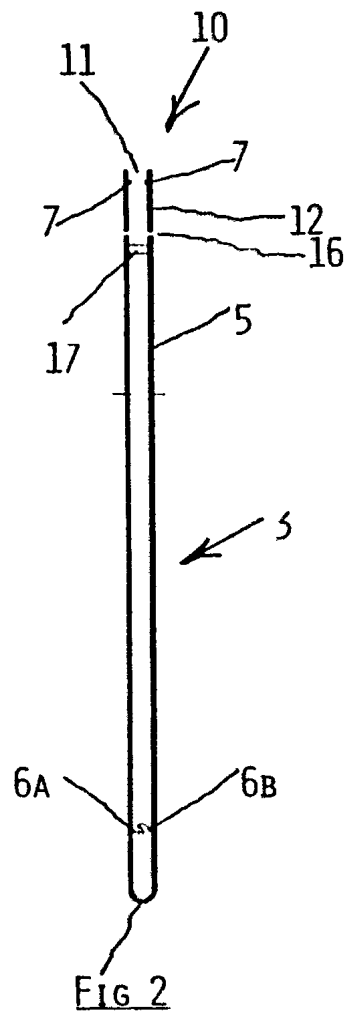


FIG 2

SUBSTITUTE SHEET

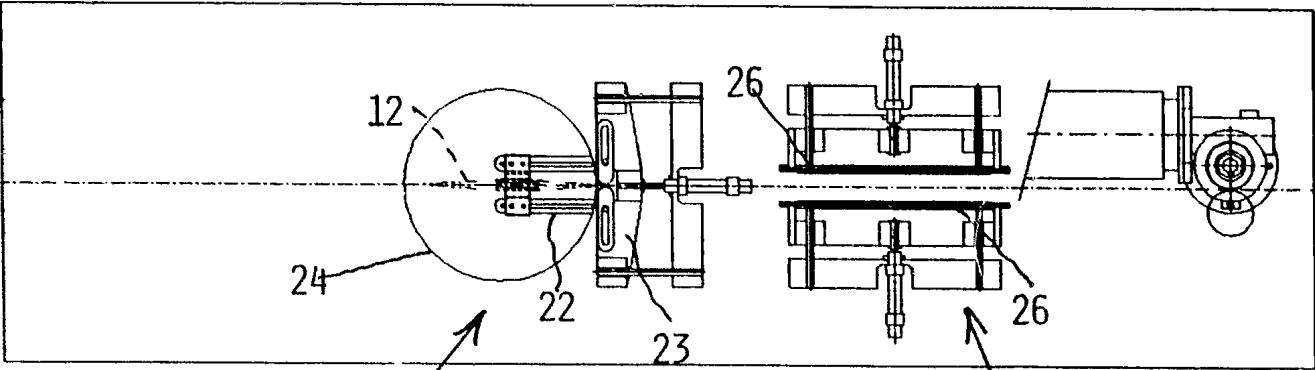


FIG 5

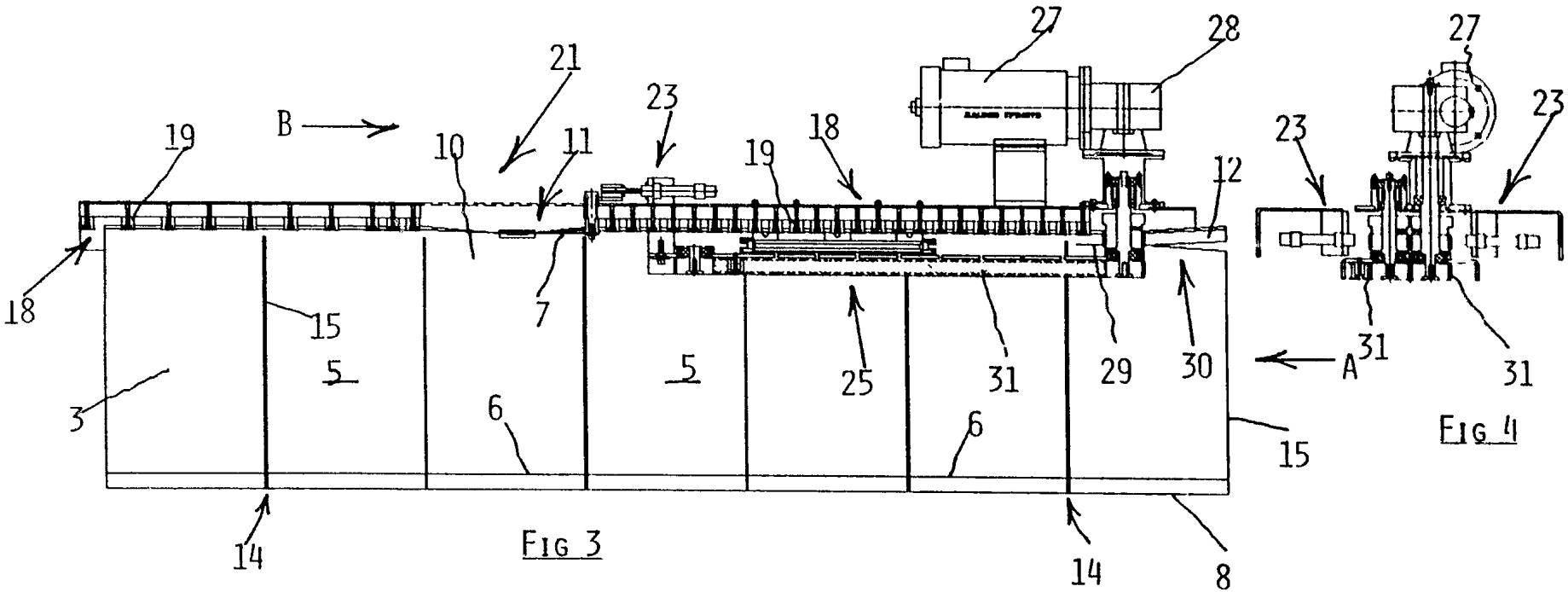


FIG 3

FIG 4

21 22 23 24 25 26 27 28 29 30 31

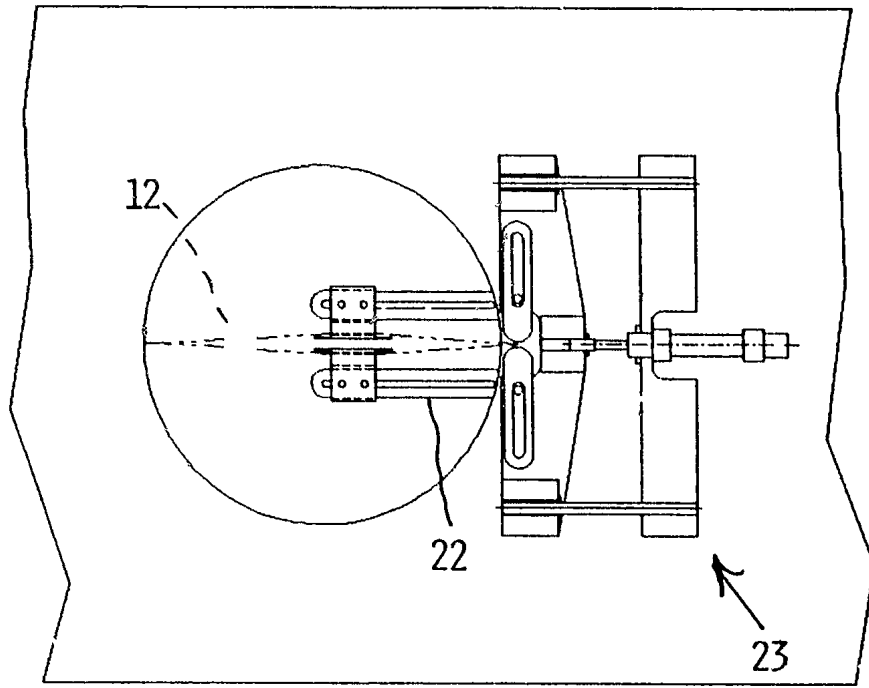


FIG 7

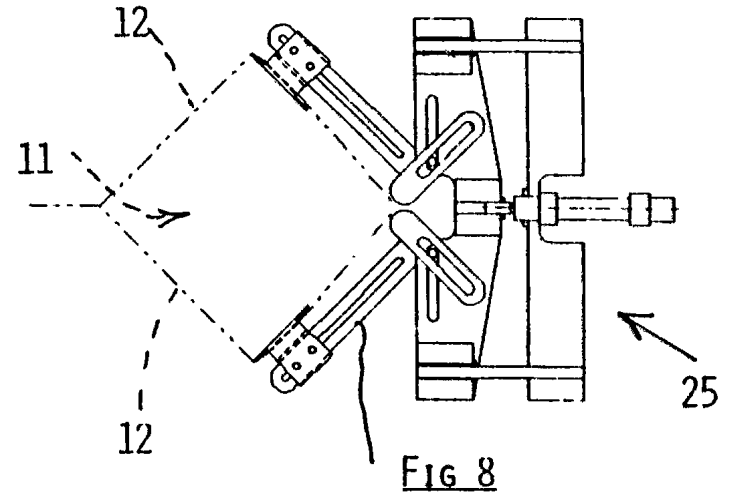


FIG 8

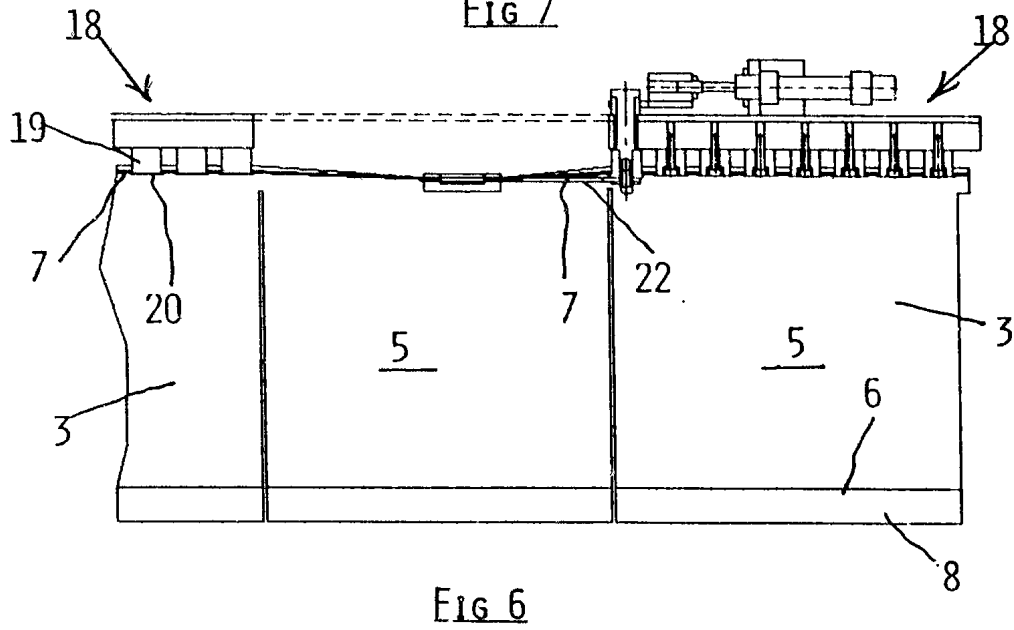


FIG 6

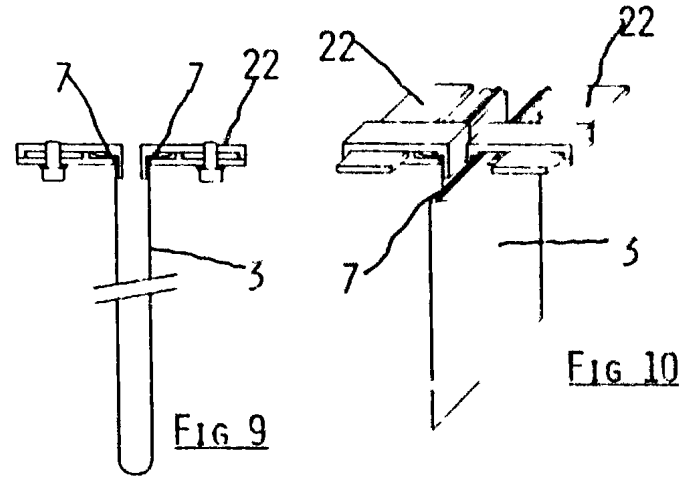



FIG 9

FIG 10

**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/NZ 94/00012

<p><b>A. CLASSIFICATION OF SUBJECT MATTER</b>                  Int. Cl.<sup>5</sup> B65D 33/24, 33/34, 75/42; B65B 43/12; B31B 27/00</p> <p>According to International Patent Classification (IPC) or to both national classification and IPC</p>														
<p><b>B. FIELDS SEARCHED</b></p> <p>Minimum documentation searched (classification system followed by classification symbols)                  IPC: B65D 33/16, 33/24, 33/25, 33/34, 75/42; B65B 43/12; B31B 27/00</p> <p>Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched                  AU: IPC as above</p> <p>Electronic data base consulted during the international search (name of data base, and where practicable, search terms used)</p>														
<p><b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b></p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:10%;">Category*</th> <th style="width:70%;">Citation of document, with indication, where appropriate, of the relevant passages</th> <th style="width:20%;">Relevant to Claim No.</th> </tr> </thead> <tbody> <tr> <td style="text-align:center;">Y</td> <td>AU,A 12921/83 (STRIFORM PACKAGING PTY. LTD.) 4 October 1984 (04.10.84) Page 8 and claim 1. Bottom filled, tamper evident top.</td> <td style="text-align:center;">1-7</td> </tr> <tr> <td style="text-align:center;">Y</td> <td>AU,A,16373/92 (KRAFT GENERAL FOODS, INC.) 3 December 1992 (03.12.92) Whole document. Bottom filled, tamper evident top.</td> <td style="text-align:center;">1-8</td> </tr> <tr> <td style="text-align:center;">Y</td> <td>US,A,4665552 (LEMS) 12 May 1987 (12.05.87) Bags separate except for continuous strips with support rails.</td> <td style="text-align:center;">1-8</td> </tr> </tbody> </table>			Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to Claim No.	Y	AU,A 12921/83 (STRIFORM PACKAGING PTY. LTD.) 4 October 1984 (04.10.84) Page 8 and claim 1. Bottom filled, tamper evident top.	1-7	Y	AU,A,16373/92 (KRAFT GENERAL FOODS, INC.) 3 December 1992 (03.12.92) Whole document. Bottom filled, tamper evident top.	1-8	Y	US,A,4665552 (LEMS) 12 May 1987 (12.05.87) Bags separate except for continuous strips with support rails.	1-8
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to Claim No.												
Y	AU,A 12921/83 (STRIFORM PACKAGING PTY. LTD.) 4 October 1984 (04.10.84) Page 8 and claim 1. Bottom filled, tamper evident top.	1-7												
Y	AU,A,16373/92 (KRAFT GENERAL FOODS, INC.) 3 December 1992 (03.12.92) Whole document. Bottom filled, tamper evident top.	1-8												
Y	US,A,4665552 (LEMS) 12 May 1987 (12.05.87) Bags separate except for continuous strips with support rails.	1-8												
<p><input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <span style="margin-left: 200px;"><input checked="" type="checkbox"/> See patent family annex.</span></p>														
<p>* Special categories of cited documents :</p> <table style="width:100%;"> <tr> <td style="width:50%; vertical-align: top;"> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> </td> <td style="width:50%; vertical-align: top;"> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"&amp;" document member of the same patent family</p> </td> </tr> </table>			<p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"&amp;" document member of the same patent family</p>										
<p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"&amp;" document member of the same patent family</p>													
<p>Date of the actual completion of the international search 24 May 1994 (24.05.94)</p>		<p>Date of mailing of the international search report <b>3 June 1994 (03.06.94)</b></p>												
<p>Name and mailing address of the ISA/AU                  AUSTRALIAN INDUSTRIAL PROPERTY ORGANISATION                  PO BOX 200                  WODEN ACT 266                  AUSTRALIA                  Facsimile No. (06) 2853929</p>		<p>Authorized officer    <b>R. KIRBY</b>                  Telephone No. (06) 2832369</p>												

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/NZ 94/00012

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate of the relevant passages	Relevant to Claim No.
Y	US,A,4630311 (BENTSON) 12 December 1986 (12.12.86) Fig 2. Bottom filled. Support rails at bottom, reclosable elements at top.	2,3,4,7,8
Y	AU,B,2851/54 (210510) (PACKS PTY. LIMITED) 8 March 1956 (08.03.56) Bags separate except for continuous strips.	1,2,5,8,9
A	AU,B,3085/61 (256397) (KABUSHIKI KAISHA SEISAN NIHOM SHA) 4 April 1963 (04.04.63)	
A	US,A,5118202 (BRUNO) 2 June 1992 (02.06.92)	
A	US,A,3559874 (TITCHENAL) 2 February 1971 (02.02.71)	
A	US,A,5023122 (BOECKMANN) 11 June 1991 (11.06.91)	
A	EP,A,405995 (OSCAR MAYER FOODS CORP.) 2 January 1991 (02.01.91)	

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/NZ 94/00012

## Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2.  Claim Nos.: 10, 11, 12  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:  
Claims 10, 11, 12 are indefinite by reason of reliance on the description and drawings.
  
3.  Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

Five inventions as reasoned on the extra sheet.

1.  As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims
2.  As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3.  As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
  
4.  No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

### Remark on Protest

- The additional search fees were accompanied by the applicant's protest.
- No protest accompanied the payment of additional search fees.

## Supplementary Sheet - Continuation of Box II

The international application does not comply with the requirements of unity of invention because it does not relate to one invention or to a group of inventions so linked as to form a single general inventive concept. In coming to this conclusion the International Searching Authority has found that there are five inventions:

1. Claim 1 to a series of bags arranged for bottom filling by being provided with support rails characterised by the special technical feature of the edge forming seals also sealing the edges of a fold of the bag forming material which extends between the engaged reclosable elements to form the tops of the bags providing a tamper evident feature at the opening end.
2. Claim 2 to a series of bottom opened interconnected bags characterised by the special technical feature of support rails on severable strips and being appropriately spaced from the conjunctions of the strips with the bottom openings defining extremities of the bags.
3. Claim 5 to a method of manufacturing series of bottom opened interconnected bags characterised by the special technical feature comprising the steps of the method. (Note that the bags from this claim do not require support rails).
4. Claim 7 to a method of charging a series of interconnected bags characterised by the special technical feature comprising the steps of the method.
5. Claim 8 to an apparatus for charging a series of bottom opened interconnected bags characterised by the special technical feature comprising components of the apparatus.

Since the abovementioned groups of claims do not share either of the technical features identified, a "technical relationship" between the inventions, as defined in PCT Rule 13.2 does not exist.

Bags having reclosable elements at the top end and provided with support rails at an opposite end for bottom filling are known from the prior art US 4630311.

Bags interconnected by strips incorporating support rails are known from US 4665552.

Accordingly the international application does not relate to one invention or to a single inventive concept.

**INTERNATIONAL SEARCH REPORT**

International application No.

**PCT/NZ 94/00012**

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report		Patent Family Member					
AU	12921/83						
AU	16373/92	EP	516393	CA	2069030	CN	1067414
		JP	6092362	MX	9202531		
US	4665552	CA	1255263	CA	1267121	DE	3662378
		DK	2861/86	EP	205852	FI	862575
		FI	81063	JP	62004010	NZ	213941
		US	4848064	AU	62419/86	DE	3768711
		DK	3011/87	EP	249868	JP	63000008
US	5118202						
US	3559874	BE	732665	DE	1923020	FR	2009866
		GB	1265572	NL	166656	US	3744211
		US	3699746				
US	5023122	DE	68901183	DK	346/89	EP	325993
		ES	2030913	GB	8829010	GB	2214487
		US	4846585				
EP	405995	AT	102154	CA	2019761	DE	69006944
		EP	405995	JP	3056249		
<b>END OF ANNEX</b>							