

COMMONWEALTH OF AUSTRALIA
Patents Act 1952

DECLARATION IN SUPPORT OF A CONVENTION
APPLICATION FOR A PATENT OR PATENT OF ADDITION

(1) Here
insert (in
full) Name
of Company.

In support of the Convention Application made by ⁽¹⁾ BAXTER INTERNATIONAL
INC., a Corporation of the State of Delaware, United States of America

(2) Here
insert title
of Invention

for a patentfor an invention entitled ⁽²⁾ GLOVE

(3) Here
insert Name
and Address
of Company
Official
authorised
to make
declaration.

I, ⁽³⁾ John F. Gaither, Jr., Assistant Secretary
of BAXTER INTERNATIONAL INC.,
Deerfield, Illinois 60015, United States of America

(4) Here
insert basic
Country or
Countries
followed by
date or dates
and basic
Applicant or
Applicants.

do solemnly and sincerely declare as follows:
1. I am authorised by ⁽¹⁾ BAXTER INTERNATIONAL INC.
.....the applicant
for the patent.....to make this declaration on its behalf.

2. The basic application(s) as defined by Section 141 of the Act was/were made in ⁽⁴⁾ BE
on the 1st day of April 1988, by
Jean Kersten, Etienne Lombard and Daniel Heindricks
on theday of198.....by

(5) Here
insert (in
full) Name
and Address
of Actual
Inventor or
Inventors.

3. ⁽⁵⁾ Jean Kersten of Chaussee De Tournai 259, 7931 Villers St. Amand,
Belgium, Heindricks, Daniel of 23, rue D'Eupen, B-4888 Waimmes, Belgium;
and Etienne Lombard of 16, rue Mintens, 1470 Genappe, Belgium
is/are the actual inventor(s) of the invention, and the facts upon which ⁽¹⁾
the applicant company

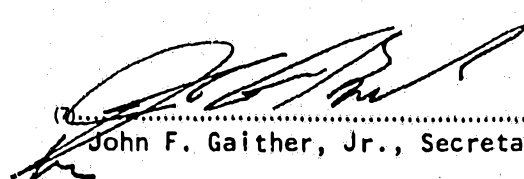
is entitled to make the application, are as follows:
The said ⁽¹⁾ BAXTER INTERNATIONAL INC,
is the assignee of the said ⁽⁶⁾ Jean Kersten, Etienne Lombard and Daniel Heindricks

(6) Full Name
of Actual
Inventor or
Inventors.

4. The basic application(s) referred to in paragraph 2 of this Declaration was/were the first
application(s) made in a Convention country in respect of the invention the subject of the
application.

DECLARED at Deerfield, Illinois 60015 U.S.A.
this 24th day of March 1989

(7) Signature.


⁽⁷⁾ John F. Gaither, Jr., Secretary

To:
THE COMMISSIONER OF PATENTS.

(12) PATENT ABRIDGMENT (11) Document No. AU-B-34160/89
(19) AUSTRALIAN PATENT OFFICE (10) Acceptance No. 609978

(54) Title
GLOVE

International Patent Classification(s)
(51)⁴ A41D 019/00 A61B 019/04 A61L 031/00 B29D 031/00

(21) Application No. : 34160/89 (22) Application Date : 29.03.89

(87) WIPO Number : WO89/08995

(30) Priority Data

(31) Number (32) Date (33) Country
8800385 01.04.88 BE BELGIUM

(43) Publication Date : 16.10.89

(44) Publication Date of Accepted Application : 09.05.91

(71) Applicant(s)
BAXTER INTERNATIONAL INC.

(72) Inventor(s)
JEAN KERSTEN; DANIEL HEINDRICH; ETIENNE LOMBARD

(74) Attorney or Agent
PETER MAXWELL & ASSOCIATES, 5-7 Ross St, NORTH PARRAMATTA NSW 2151

(56) Prior Art Documents
US 4696065
US 3874000

(57) Claim

1. A glove comprising a front sheet and a back sheet, at least one of said sheets consisting of an outer layer and an inner layer made of polymeric films, said layers being bound to each other, characterized in that faces facing each other of at least two adjacent layers are independent from each other so as to allow relative movements between said two layers and at least one of said adjacent layers contain at least one agent allowing said layers to slide on each other.

609078 PCT

OPI DATE 16/10/89

APPLN. ID 34160 / 89

AOJP DATE 09/11/89

PCT NUMBER PCT/US89/01300

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCI)

(51) International Patent Classification ⁴ : A41D 19/00, A61B 19/04 B29D 31/00, A61L 31/00	A1	(11) International Publication Number: WO 89/08995 (43) International Publication Date: 5 October 1989 (05.10.89)
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(21) International Application Number: PCT/US89/01300
(22) International Filing Date: 29 March 1989 (29.03.89)
(31) Priority Application Number: 8800385
(32) Priority Date: 1 April 1988 (01.04.88)
(33) Priority Country: BE

(71) Applicant (for all designated States except US): BAXTER INTERNATIONAL INC. [US/US]; One Baxter Parkway, Deerfield, IL 60015 (US).

(72) Inventors; and
(75) Inventors/Applicants (for US only) : KEESTEN, Jean [BE/BE]; 259, chaussée de Tournai, B-7931 Villers St. Amand (BE). HEINDRICHS, Daniel [BE/BE]; 23, rue d'Eupen, B-4888 Waimies (BE). LOMBARD, Etienne [BE/BE]; 16, rue Mintens, B-1470 Genappe (BE).

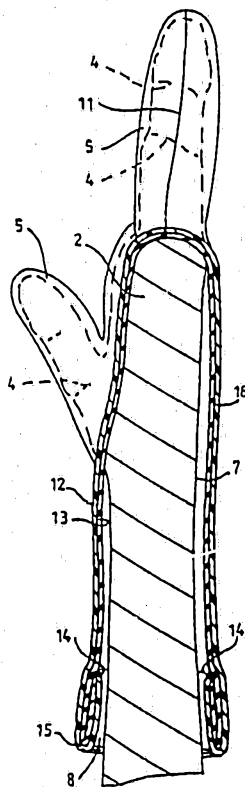
(74) Agents: JANKOUSKY, Mary, R. et al.; One Baxter Parkway, Deerfield, IL 60015 (US).

(81) Designated States: AT (European patent), AU, BE (European patent), CH (European patent), DE (European patent), FR (European patent), GB (European patent), IT (European patent), JP, LU (European patent), NL (European patent), NO, SE (European patent), US.

Published
*With international search report.
Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.*

This document contains the amendments made under Section 49 and is correct for printing.

(54) Title: GLOVE



(57) Abstract

A glove comprising a front sheet (9) and a back sheet (10). At least one of the sheets consists of an outer layer (12) and an inner layer (13) made of polymeric films. The layers are bound to each other. The faces (18) facing each other of at least two adjacent layers (12, 13) are independent from each other so as to allow relative movement (M) between the two layers (12, 13).

GLOVE

The present invention relates to a glove comprising a front sheet and a back sheet, at least one of said sheets consisting of an inner layer and an outer layer made of polymeric films, said layers being bound to each other.

5 The use of very thick plastic gloves becomes necessary, when the user is submitted to rather high temperatures, ionizing radiations, highly toxic aggressive chemicals or high mechanical stresses.

10 The front and back sheets of known plastic gloves, such as described in US-A-3,025,403 and US-A-3,883,749, comprise each an inner layer and an outer layer consisting of polymeric films which are bound to each other on the entire area of the faces facing each other of said layers, so that said layers are integral.

15 When said gloves are thick, for example, when they have a thickness of about 200 microns, it becomes frequently difficult or impossible for the user to have a good feeling for the fingers.

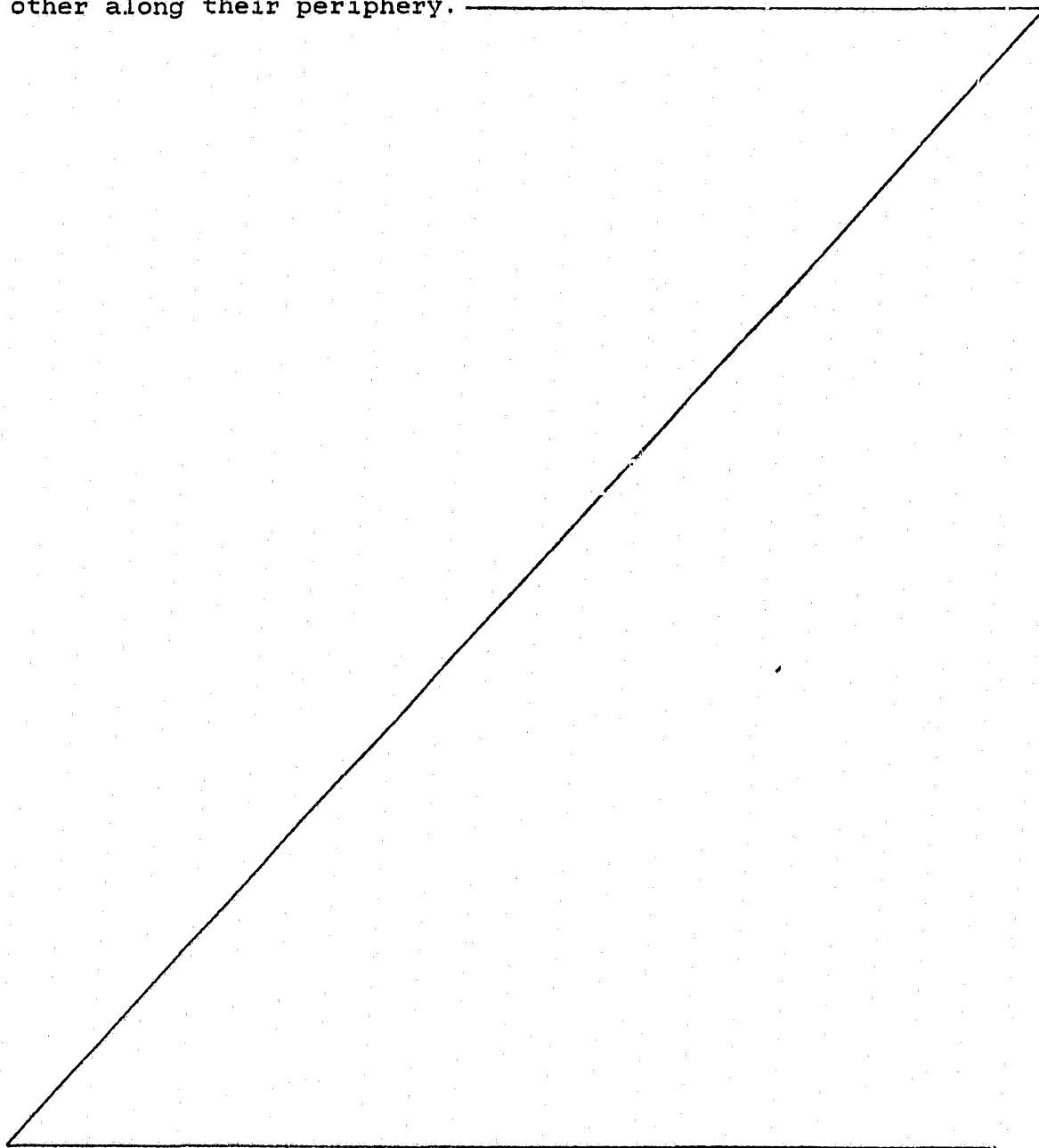
20 Another disadvantage of the known plastic gloves provided with polymeric layers glued together is the danger of a complete tear from a little fissure or another defect.

25 According to the invention there is provided a glove comprising a front sheet and a back sheet, at least one of said sheets consisting of an outer layer and an inner layer made of polymeric films, said layers being bound to each other, characterized in that faces facing each other of at least two adjacent layers are independent from each other so



as to allow relative movements between said two layers and at least one of said adjacent layers contain at least one agent allowing said layers to slide on each other.

The glove according to the invention comprises preferably at least two separate layers only bound to each other along their periphery.



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In a particular embodiment of the glove according to the invention, the dynamic and static friction coefficient of the faces facing each other of said adjacent layers is of less than 0.80 and more preferably lower than 0.70.

According to a feature of the glove according to the invention, the adjacent layers contain at least one agent allowing said layers to slide on each other or the faces facing each other of the adjacent layers are coated with at least one agent allowing said layers to slide on each other.

Said agent is preferably selected in the group consisting of saturated hydrocarbons, fatty acids, high molecular weight alcohols, metal soaps, waxes fatty acid monoesters, fatty acids partially esterified polyfunctional alcohols, fatty acid bisamides, stearamide and erucamide.

More particularly, said agent which acts as a lubricant is selected among :

- solid paraffins (saturated hydrocarbons) such as polyethylene waxes having a molecular weight comprised between 2,000 and 10,000 and having preferably a melting point of about 65 to 75° C ;
- higher molecular weight fatty acids such as stearic, palmitic, myristic, oleic and 12-hydroxy stearic acids ;
- cetylstearyl alcohol ;
- stearates of lithium, strontium, calcium, aluminum, barium and lead ;

- esters of fatty acids and high molecular weight monofunctional alcohols such as waxes from partially saponified montanic acid, esters with C₂₈ and C₃₂ chains and stearyl stearate ;
- 5 - butyl and octyl stearates ;
- hydrogenated tallow glycerides, glyceryl mono-stearates or glyceryl monoricinoleates, esters of
- 10 sorbitol, ethylene glycol, propylene glycol and pentaerythritol, and
- ethylene bisstearoylamide, ethylene bisoleoyl-
- 15 amide, C₁₆ and C₁₈ bisamide, ethylene bisstearoyl-
- amide.

Said additive, agent or product is used in most formulations in a proportion of 1 to 2 % by weight with respect to the weight of the polymer. These

20 additives, agents or products improve the surface properties of polymers, but may also improve the light stability, resistance to degradation by corrosive agents and to water absorption and the electrical, optical and mechanical properties.

25 Said additives or lubricants prevent the polymers to have a tendency toward tackiness.

30 In another particular embodiment of the invention, the faces facing with each other of the adjacent layers are provided with a multiplicity of projections and/or cavities.

Instead of providing a sliding agent within the adjacent layers or in a coating applied on these layers, it is possible, according to the invention, to use loose particles which are located between the faces of said adjacent layers, said particles promoting relative movements between said layers.

The adjacent layers may be independent from each other only in the finger area or even only in the neighbourhood of the knuckles of said finger area. Of course, said adjacent layers may be independent from each other on the entire area of the faces facing each other, except that said layers are welded together along at least one of their edges.

Other features of the invention will appear in the following detailed description of various embodiments of gloves according to this invention.

In this description reference is made to the attached drawings in which :

- Figure 1 is a front view of a glove according to the invention ;
- Figure 2 is a cross-section along the line II - II of Figure 1 ;
- Figure 3 shows in cross-section adjacent layers of the glove ;
- Figure 4 shows, also in cross-section, the adjacent layers shown in Figure 3, when bended ;
- Figures 5 to 8 are cross-sections similar to that

of Figure 3 showing further embodiments of the invention, and

- 5 - Figure 9 is a cross-section similar to that of Figure 2, showing still another embodiment of the invention ;
- 10 - Figure 10 is a front view of a first step of a process for making gloves according to the invention ;
- Figure 11 is a front view of a second step of said process ;
- 15 - Figures 12 and 13 are respectively a front view and a cross-section of layers shown in Figure 11 when bent ;
- 20 - Figures 14 and 15 are respectively a front view and a cross-section of the layers shown in Figures 12 and 13, when said layers are bound by welding together ;
- 25 - Figure 16 is a cross-section of the layers shown in Figure 15 when said layers forming a first sheet are covered with a second sheet, and
- Figure 17 is a front view of the layers shown in Figure 16 when hot pressed.

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In these figures, the same elements or parts are designated by the same references.

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Figure 1 shows a glove 1 fitted on a hand 2 shown in dotted lines, with hand fingers 3 and the knuckles 4 thereof.

The glove 1 comprises a finger part 5, a palm part 6, a wrist part 7 and a forearm part 8.

5 The glove 1 comprises a front sheet 9 and a back sheet 10 which are welded together all along their corresponding edges 11. Each of the sheets 9, 10 consists of an outer layer 12 and an inner layer 13 made of polymeric films which are adjacent to each other and bound together along said edges 11 (see Figure 2).

10 Said inner layer 13 and outer layer 12 are also bound to each other by welding (see welding line 14), in the neighbourhood of the end 15 of the glove 1, said end 15 being adjacent to the wrist part 7 or forearm part 8. In fact, the forearm part 8 of the glove 1 is bent inwardly as shown by reference 16, so that said forearm part 8 comprises in fact four layers 12, 13 per sheet 9,10. An additional welding line 17 is provided on the edges 11 of the end 15 of the forearm 8.

15 20 The faces of the outer layer 13 and of the inner layer 12 of each sheet, 9, 10, which face each other, are not glued together, but are independent from each other so as to allow relative movements between said adjacent layers.

25 30 This relative movement M between said layers 12, 13 can be due to a bending of a finger 4. Due to this movement, two points B,B' of said layers are displaced from each other (see Figures 3 and 4).

35 The layers 12, 13 of each sheet 9,10 are made of a plastic material having low dynamic and static friction coefficients, the latter being of less than 0.80, preferably of less than 0.70.

The layers 12, 13 may be made of various polymeric materials, such as polyolefins particularly polyethylene, polyvinylidene chloride or fluoride, polytetrafluorethylene, polyacrylate, polyamide, polyimide, silicones, rubber, polyurethane, neoprene and the like. Preferably the layers 12, 13 are made of linear polyethylene having a very low density of at most about 0.91.

Said polymers may contain various antistatic agents, fillers and stabilizers. Such fillers may be asbestos, lead derivatives, bismuth derivatives and other known agents.

The layers 12 and 13 may have the same thickness or different thicknesses. The thickness of each of these layers 12, 13 is preferably comprised between 25 and 300 microns.

If necessary, in order to improve the sliding capacity of the layers 12, 13, these layers may contain an additive or agent which promotes said sliding effect.

The faces of the adjacent layers 12, 13 which face each other and which must be able to move separately from each other may also be coated with at least one agent or product promoting such relative movement. Such coatings 19 are shown in figure 5.

Figure 4 shows that, when the layers 12, 13 of Figure 3 are bent, for example in the knuckle areas 4 of the finger part 3, the inner layer 13 is slightly

stretched, whereas the outer layer 12 is subjected to a noticeable elongation. In this way, the layers 12, 13 follow closely the movements of the fingers 4 or other parts of the user's hand, so that the feeling sensitivity of the glove is substantially better than that of a previously known glove comprising monolayered front and back sheets.

The additive, agent or product promoting relative movement or sliding capacity are selected among the group consisting of saturated hydrocarbons, fatty acids, high molecular weight alcohols, metal soaps, waxes, fatty acid monoesters, fatty acids partially esterified polyfunctional alcohols, fatty acid bisamides, stearamide and erucamide.

Examples of such additives, agents or products are polyethylene waxes having a molecular weight from 2,000 to 10,000 such as A-C Polyethylene 6 A and 629 A (Allied Chemical Corp, U.S.A.), Epolene E-14P Wax (Eastman Chemical Products, Inc, U.S.A.), stearic acid, myristic acid such as Harwick F-300 (Harwick Chemical Corp, U.S.A.) and Loxiol G20 (Henkel, Inc, U.S.A.), cetylstearyl alcohol, aluminum stearate such as Plymouth SM-03 (Penick, S.B., and Co, U.S.A.), barium stearate such as Witco (Witco Chemical Corp., U.S.A.) cadmium stearate such as Synpro cadmium (Synthetic Products Co., Div.Dart Industries Inc., U.S.A.), calcium stearate such as Lubricant Hoechst VPCaF1 and VPCaF2 (American Hoechst Corp., U.S.A.), lead stearate such as Lubricant Hoechst VPPbF1 (American Hoechst Corp., U.S.A.), partially saponified montanic acid such as Lubricant Hoechst Wax OP (American Hoechst Corp., U.S.A), $C_{28}-C_{32}$ chains ester such as Lubricant Hoechst Wax E (American Hoechst Corp., U.S.A.), stearyl stearate such as Loxiol

G 30 (Henkel, Inc., U.S.A.), butyl stearate, octyl stearate, glyceryl monostearate, glycerol monoricinoleate such as Loxiol G 10 (Henkel, Inc, U.S.A.), fatty acid glycerol monoesters such as Lubricant Hoechst VP FE 2 (American Hoechst Corp., U.S.A.), ethylene bisstearoylamide such as Interstab G-8257 (Interstab Chemicals, Inc., U.S.A.) and C₁₆-C₁₈ chains bisamide such as Lubricant Hoechst Wax C (American Hoechst Corp., U.S.A.).

10 Preferred additives are stearamide and erucamide.

Figure 6 shows two layers 12, 13 of a sheet 9, 10, the layer 13 being provided with a multiplicity of projections 20 on a face 18 which is adjacent to the layer 12. Said multiplicity of projections promote relative movements between said layers 12, 13. Instead of projections, the layers 12, 13 may also be provided with cavities.

20 Figure 7 shows two layers 12, 13 of a sheet 9, 10 of a glove 1. Between the faces 18 facing each other of said adjacent layers 12, 13, loose particles 21 are located so as to promote relative movements between said layers 12, 13. Such loose particles may be, for example, talc particles having a size lower than 50 microns.

30 Figure 8 shows two layers 12, 13 of a sheet 9, 10 which are welded together along their edges 11. Between the faces 18 facing each other of said adjacent layers 12, 13, a sliding film 22 is inserted.

35 Said film which may be an aluminum or polytetrafluorethylene film is preferably bound to the

layers 12, 13 in the neighbourhood of their welded edges. Such a film 22 allows to obtain a static and dynamic friction coefficient of said faces 18 of less than 0.80.

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Figure 9 shows in cross-section a glove 1 similar to that represented in Figure 2, except that the sheet 9 intended to cover the palm part 6 of a hand comprises only one layer 13 made of a polymeric film. Said sheet 9 may comprise only one layer 13, since it is only submitted to bending and not to stretching.

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A process for making gloves according to the invention is schematically shown in figures 10 to 17.

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A first layer 12 is deposited on a support 23. This layer 12 may be made of a polyethylene having a density of about 0.91 and containing from 30 to 80 % by weight of particles of bismuth oxide of the formula Bi_2O_3 . Said particles have a size lower than 40 microns, preferably lower than 10 microns and more preferably lower than 5 microns. The bismuth oxide diminishes the friction coefficient to a value lower than 0.7. Instead of Bi_2O_3 , particles of bismuth, other bismuth oxide, bismuth hydroxide and bismuth salts may be used.

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The first layer 12 has a thickness of about 80 microns.

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Preferably, the support 23 is covered with a smooth paper sheet 24 on which said layer 12 is deposited (see Fig. 16).

On this layer 12, a second layer 13 which has the same characteristics as those of the layer 12 is deposited. Said layer 13 has a length L which is somewhat lower than that of the layer 12 (see Figure 11), so that when one end 25, 26 of said layers 12, 13 is bent, the layer 12 covers the end 25 of said layer 12 (see Figures 12 and 13).

When the layers 12, 13 are bent at one (25, 26) of their ends, these layers 12, 13 are welded together in the neighbourhood of said ends 25, 26. The welding line 14 is shown in dotted lines in Figure 14. Figure 15 shows a cross-section of the layers 12, 13 represented in Figure 14 along the line XV-XV.

Said layers 12, 13 form a first sheet 9. Another sheet 10, which is identical to said first sheet 9, is deposited so that the ends 25, 26 are adjacent (see Figure 16).

Then a hot pressing machine 27 is pressed on said sheets 9, 10 so as to form welding lines 11. Said welding lines 11 bind the sheets 9, 10 as well as the layers 12, 13 of each sheet together. The welding lines 11 define the form of the desired glove 1.

Preferably the hot pressing machine forms also further welding lines 28 in the neighbourhood of the ends 25, 26 of the sheet 9, 10 and in the neighbourhood of the welding line 11, so as to avoid any risk of tear when fitting the glove on.

Gloves 1 made by the above described process may be used for the right hand or for the left hand, without difficulty.

Example

The following example illustrates the composition of a glove according to this invention.

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A glove according to figures 1 to 4 has been manufactured in the manner described above by using films of polyethylene having a density of about 0.900 - 0.920 and a thickness of about 100 microns, said films containing 0.4 % by weight of erucamide. The friction coefficient of the surfaces facing each other of the sheet was of 0.70.

The gloves 1 according to the invention are suitable for domestic, medical, surgical, or industrial uses. They are particularly suitable for surgical operations and medical examination.

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THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A glove comprising a front sheet and a back sheet, at least one of said sheets consisting of an outer layer and an inner layer made of polymeric films, said layers being bound to each other, characterized in that faces facing each other of at least two adjacent layers are independent from each other so as to allow relative movements between said two layers and at least one of said adjacent layers contain at least one agent allowing said layers to slide on each other.
2. A glove according to claim 1, characterized in that each sheet comprises at least two separate layers only bound to each other along their periphery.
3. A glove according to claim 1 or 2, characterized in that the dynamic and static friction coefficient of the faces facing each other of the said adjacent layers is of less than 0.80.
4. A glove according to claim 3, in which said friction coefficient is lower than 0.70.
5. A glove according to anyone of claims 1 to 4, characterized in that the faces facing each other of the adjacent layers are coated with at least one agent allowing said layers to slide on each other.
6. A glove according to anyone of claims 1 to 5, characterized in that the faces facing with each other of the adjacent layer are provided with a multiplicity of projections and/or cavities.



7. A glove according to anyone of the preceding claims, characterized in that loose particles are located between the faces of said adjacent layers, said particles promoting relative movements between said layers.

8. A glove according to anyone of the preceding claims characterized in that at least a sliding film is inserted between the adjacent layers.

9. A glove according to anyone of the preceding claims, characterized in that said adjacent layers are independent from each other in the finger area of the glove.

10. A glove according to claim 9, characterized in that said adjacent layers are independent from each other in the neighbourhood of the knuckles of the finger area of the glove.

11. A glove according to anyone of claims 1 to 8, characterized in that said adjacent layers are independent from each other on the entire area of the faces facing each other.

12. A glove according to anyone of the preceding claims characterized in that said agent is selected in the group consisting of saturated hydrocarbons, fatty acids, high molecular weight alcohols, metal soaps, waxes, fatty acid monoesters, fatty acids partially esterified polyfunctional alcohols, fatty acid bisamides, stearamide and erucamide.

13. A glove according to anyone of the preceding claims characterized in that said agent consists of particles of bismuth or an oxide, hydroxide or salt of bismuth.



14. A glove according to claim 13, characterized in that said additive is the bismuth oxide of the formula Bi_2O_3 .

15. A glove according to claim 13 or 14, characterized in that said particles have a size lower than 40 microns, preferably lower than 10 microns.

16. A glove according to claim 15, characterized in that said particles have a size lower than 5 microns.

17. A glove according to anyone of the claims 13 to 16, characterized in that the adjacent layers contain 30 to 80 % by weight of said particles.

18. A glove according to anyone of the preceding claims, characterized in that the separate layers are polyolefin films.

19. A glove according to claim 18, characterized in that the polyolefin film is a polyethylene film.

20. A glove according to claim 19, characterized in that the polyethylene film is made from a polyethylene having a density of at most about 0.91.

21. A glove according to anyone of the preceding claims, characterized in that the layers, the faces of which are independent from each other, have a thickness comprised between 25 microns and 300 microns.

22. A glove according to anyone of the preceding claims for medical or surgical use.



23. A glove substantially as hereinbefore described with reference to the drawings.

DATED this 6th February, 1991.

BAXTER INTERNATIONAL INC.

Patent Attorneys for the Applicant:

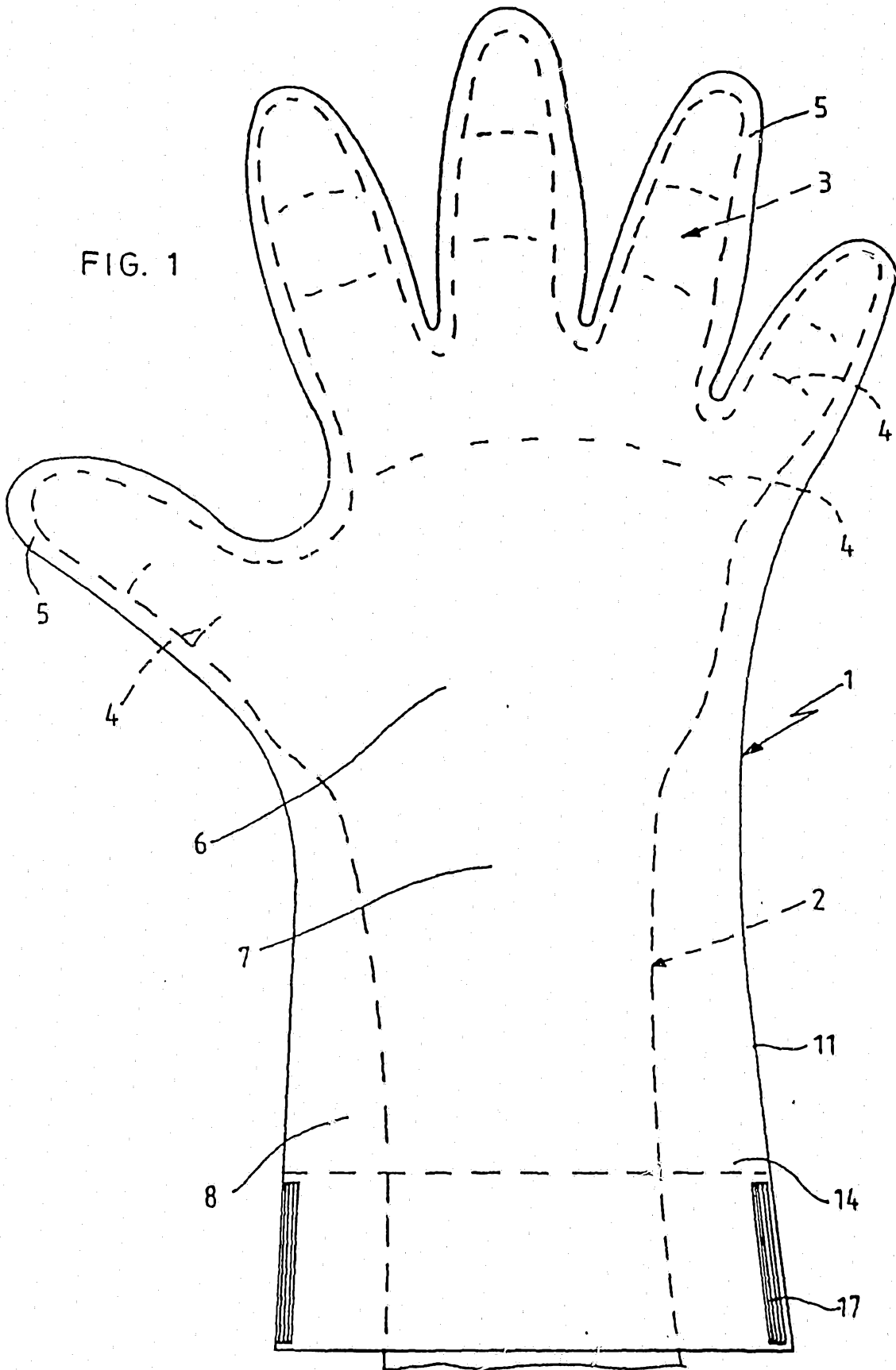
PETER MAXWELL & ASSOCIATES.

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FIG. 1



SUBSTITUTE SHEET

FIG. 5

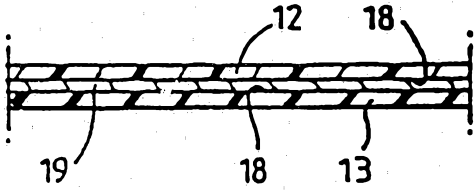


FIG. 6

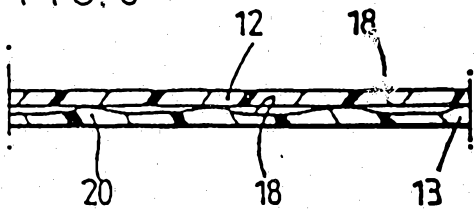


FIG. 7

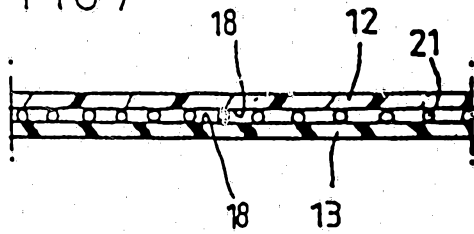


FIG. 8

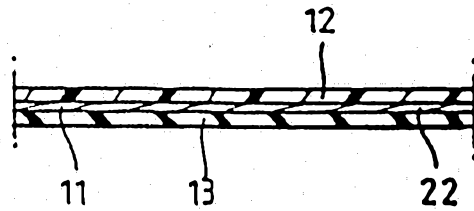
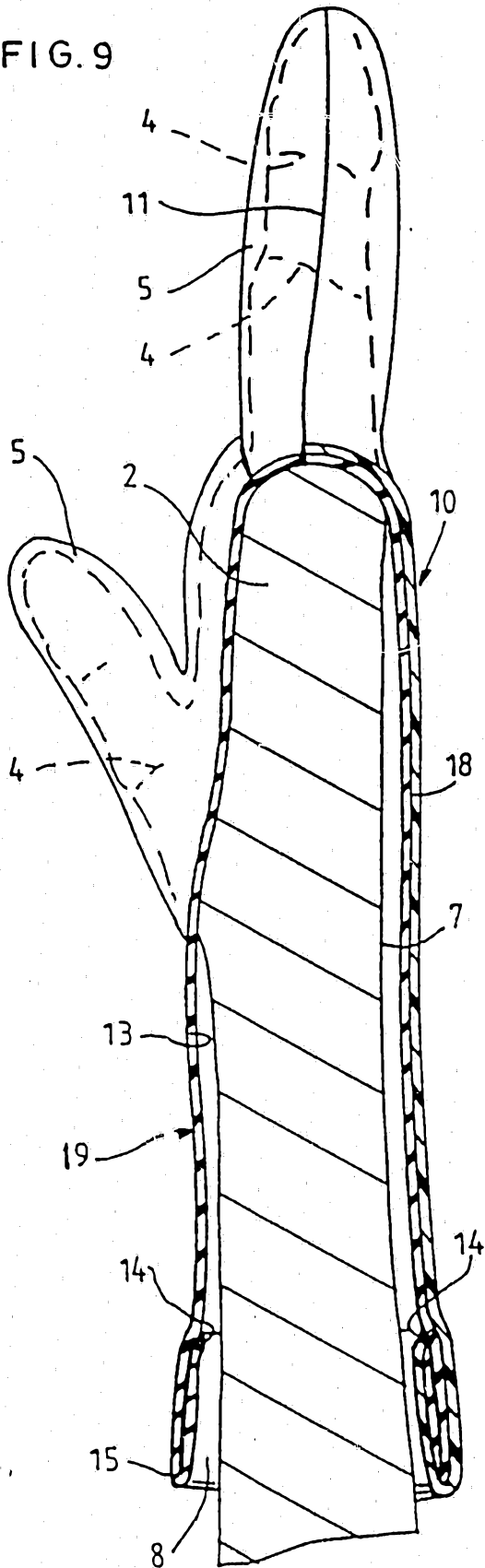


FIG. 9



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FIG. 10

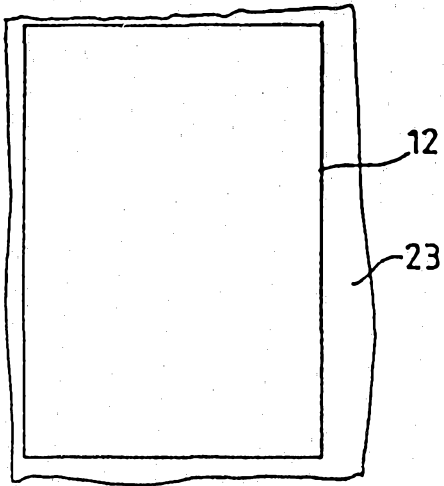


FIG. 11

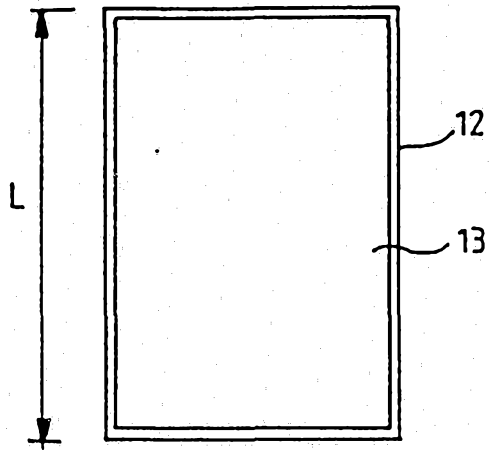


FIG. 12

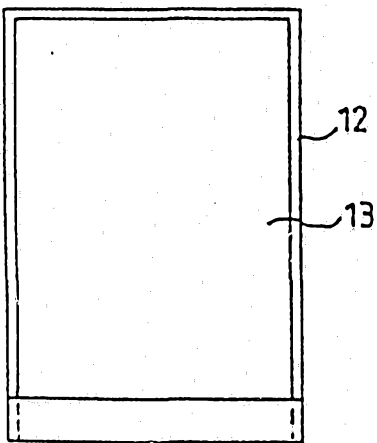


FIG. 13

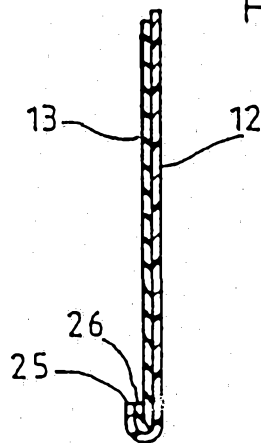


FIG. 14

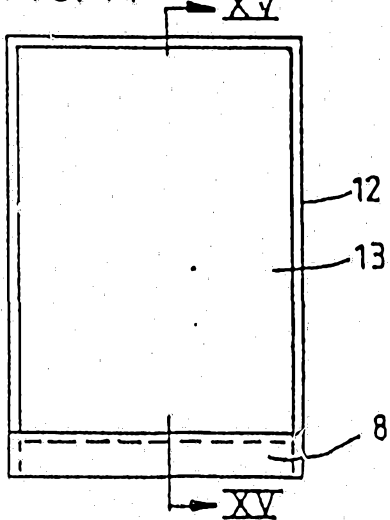
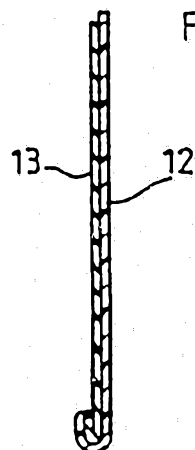


FIG. 15



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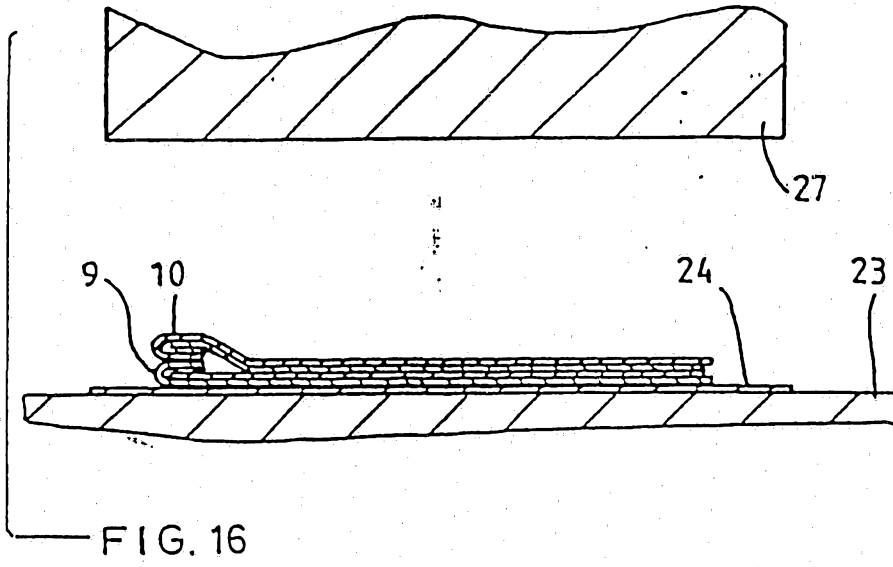
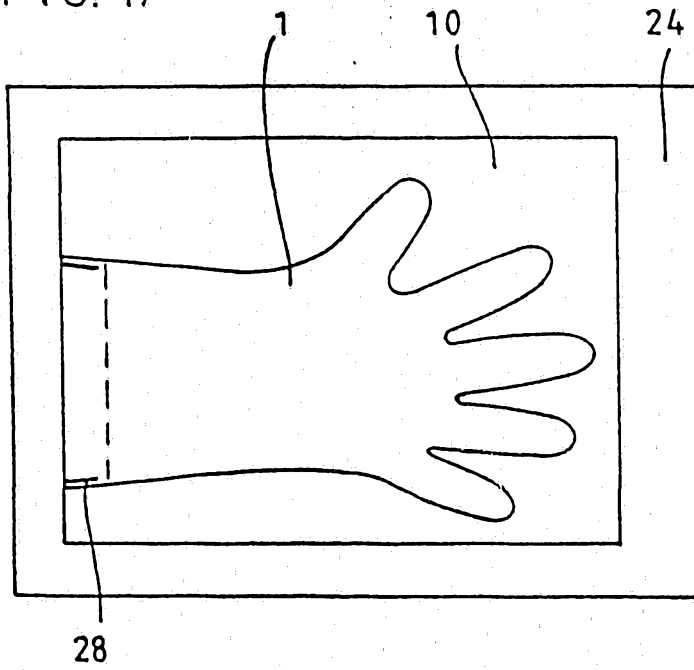


FIG. 17



INTERNATIONAL SEARCH REPORT

International Application No PCT/US 89/01300

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) *	
According to International Patent Classification (IPC) or to both National Classification and IPC	
IPC ⁴ : A 41 D 19/00, A 61 B 19/04, B 29 D 31/00, A 61 L 31/00	
II. FIELDS SEARCHED	
Minimum Documentation Searched ⁷	
Classification System	Classification Symbols
IPC ⁴	A 41 D, A 61 B, A 61 L, B 29 D, C 10 M
Documentation Searched other than Minimum Documentation to the extent that such Documents are Included in the Fields Searched ⁸	

III. DOCUMENTS CONSIDERED TO BE RELEVANT ⁹		
Category ¹⁰	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
Y	US, A, 3874000 (ALTMAN) 1 April 1975, see column 1, line 46 - column 2, line 21; figures	1, 2, 6, 9-12
A	--	23
Y	US, A, 3225360 (KEILEN) 28 December 1965, see column 1, lines 16-44; column 2, line 1 - column 3, line 65; figures 1, 2	1, 2, 6, 9-12
A	--	13
A	CH, A, 311171 (TURM-VERLAG) 31 January 1956, see page 1, lines 39-64; figures	1, 2
A	--	1, 19, 20, 23
A	US, A, 3219037 (POPE) 23 November 1965, see column 1, line 57 - column 2, line 4; figure 1	3, 4, 23
A	FR, A, 2315382 (SUTURES) 21 January 1977, see page 1, lines 1-28	3, 4, 23

- * Special categories of cited documents: ¹⁰
- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
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- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "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
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step
- "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.
- "A" document member of the same patent family

IV. CERTIFICATION	
Date of the Actual Completion of the International Search 27th July 1989	Date of Mailing of this International Search Report 22 AUG 1989
International Searching Authority EUROPEAN PATENT OFFICE	Signature of Authorized Officer M. VAN MOL

III. DOCUMENTS CONSIDERED TO BE RELEVANT (CONTINUED FROM THE SECOND SHEET)

Category	Citation of Document, with indication, where appropriate, of the relevant passages	Relevant to Claim No
A	FR, A, 2344399 (ARBROOK) 14 October 1977, see page 3, line 30 - page 4, line 32; page 7, line 6 - page 8, line 26; figure 4	5,7,16,18, 22,23
A	FR, A, 2127716 (A.C.C.) 13 October 1972, see page 1, lines 1-3; page 3, lines 16-34	6,8,16,23
A	WO, A, 81/00346 (A.H.S.C.) 19 February 1981, see page 2, line 16 - page 3, line 2	6,9,13
A	US, A, 2586674 (LONNE) 19 February 1952, see column 2, lines 26-46; figure 3	7
A	Patent Abstracts of Japan, vol. 1, no. 102, 10 September 1977, page 2347 C 77 & JP, A, 5265552 (TOYO BOSEKI) 31 May 1977, see the whole abstract	13
A	US, A, 4696065 (ELENTENY) 29 September 1987, see column 1, lines 5-7, 62-68; figures 1,1A	22,23
A	US, A, 3633216 (SCHONHOLTZ) 11 January 1972	
A	US, A, 3110035 (LAHUE) 12 November 1963	
A	US, A, 4143423 (STERNLIEB) 13 March 1979	

ANNEX TO THE INTERNATIONAL SEARCH REPORT
ON INTERNATIONAL PATENT APPLICATION NO.

US 8901300
SA 27918

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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CH-A- 311171		None	
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		GB-A- 1337617	14-11-73
US-A- 3110035		None	
US-A- 4143423	13-03-79	None	