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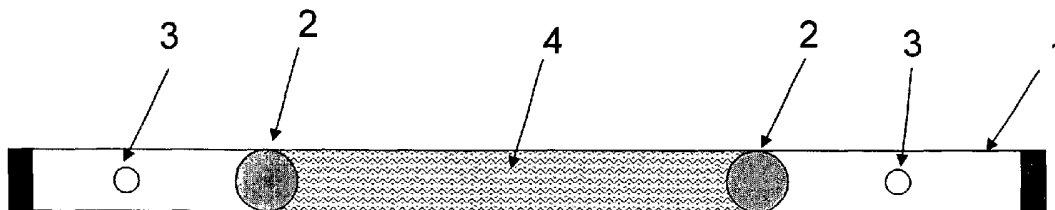
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(54) Title: PATENT APPLICATION OF GARRY TSAUR FOR CONTAINER



(57) Abstract: A container for viscous substances having an elongated housing (1), one or more piston (2), and one or more openings (3) where the one or more pistons may slide within the elongated housing to articulate the extraction of the viscous substance.

WO 03/089029 A1

**PATENT APPLICATION OF
GARRY TSAUR
FOR
CONTAINER**

BACKGROUND-FIELD OF INVENTION

The present invention relates to a container for storing viscous substances and is easily transportable. The viscous substances contained within the container can be extracted easily and completely without using any tools and without contact with the user.

BACKGROUND-DESCRIPTION OF RELATED ART

Containers that enclose viscous substances to be stored and transported are often inconvenient to use and most requires an applicator or other tools to extract the viscous substance. One conventional design utilizes a soft container that can be squeezed to extract the content through an opening that is generally sealed with a screwed-on cap. This design requires that the user first unscrew the cap to expose the opening and then apply pressure to the body of the container to force the content out through the opening. This design does not allow complete extraction of the content of the container due to the fact that as pressure is

applied to the body of the container, the content would spread out and some would always remain in the container even if the container is almost empty.

Another design uses a pump mechanism to physically pump the viscous substance through an opening that operates in conjunction with the pump mechanism such that as the pump mechanism is operated, the opening would open to allow the content to be extracted. This design is expensive to manufacture, and requires many small parts to be assembled.

SUMMARY OF THE INVENTION

The present invention is a container that stores viscous substances in a sealed environment and is easily transportable. The contents of the container can be easily extracted completely without any tools or contact with the user.

The present invention is an elongated container with one or more opening near its ends and with one or more piston with approximately the same profile and dimension as the cross sectional profile of the interior of the elongated housing enclosed in the container that will slide along the length of the elongated housing when urged and extract the contents of the container completely.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 shows the preferred embodiment of the container with two openings, one near each end of the elongated housing, and two pistons enclosing a viscous substance.

Figure 2 shows another embodiment of the container with two openings that are sealed with covers, one near each end of the elongated housing, and two pistons enclosing a viscous substance.

Figure 3 shows another embodiment of the container with one opening near one end of the elongated housing and a piston enclosing a viscous substance against the unopened end of the elongated housing with a scoring near the unopened end.

Figure 4 shows another embodiment of the container with one opening that is covered near one end of the elongated housing and a piston enclosing a viscous substance against the unopened end of the elongated housing with a scoring near the unopened end.

Figure 5 shows another embodiment of the container with two openings, one near each end of the elongated housing, and two pistons located at the same location as the openings and sealing the openings, enclosing a viscous substance.

Figure 6 shows the position of the pistons after they are urged away from the openings to extract the contents of the elongated housing.

Figure 7 shows another embodiment of the container with two openings, one near each end of the elongated housing, and two pistons retained in a retained position by restrictor and enclosing a viscous substance.

Figure 8 shows the position of the pistons after they are urged away from their retained position to extract the contents of the elongated housing.

Figure 9 shows another embodiment of the container with two openings that are covered, one near each end of the elongated housing, and two pistons retained in a retained position by restrictor and enclosing a viscous substance.

Figure 10 shows the position of the pistons after they are urged away from their retained position to extract the contents of the elongated housing.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Figure 1 shows the preferred embodiment of the container. The container has an elongated housing 1 with two ends. An opening 3 is located near each of the two ends. Two

pistons 2 are enclosed within the elongated housing 1 with approximately the same profile and dimension as the interior profile and dimension of the elongated housing 1 and located between the two openings 3. The two pistons 2 enclose and seal a viscous substance 4 between them within the elongated housing 1. The viscous substance 4 is sealed within the elongated housing 1 until the pistons 2 are urged either by air pressure or physical force to move from their initial position.

The user may simply cover one of the opening 3 with their finger and apply pressure to the air chamber in the elongated housing 1 under the opening 3 at one end to generate an air pressure that will urge the pistons 2 to slide toward the other opening 3 at the opposite end of the elongated housing 1. Since fluids are incompressible, the viscous substance 4 will slide along the elongated housing 1 at the same rate and distance as the pistons 2. Once the piston 2 at the opposite end of the elongated housing 1 slides pass the opening 3 at the opposite end of the elongated housing 1, the viscous substance 4 will exit through the opening 3 at the opposite end of the elongated housing 1 for application. The piston 2 will also scrape the interior surfaces of the elongated housing 1 to completely extract all viscous substances 4 as it slides along the elongated housing 1. The user may also simply apply physical force by squeezing one end of the elongated housing 1 and physically push the piston 2 to slide toward the other end of the elongated housing 1 to achieve the same result.

Figure 2 shows another embodiment of the container of figure 1 wherein each of the two openings 3 of the preferred embodiment is covered with a cover 5. The cover 5 will further seal the air chambers under the openings 3 to prevent contaminants from entering into the elongated housing 1 and results in a completely sealed elongated housing 1.

Figure 3 shows another embodiment of the container. The container has an elongated housing 1 with two ends. An opening 3 is located near one end of the elongated housing 1. A piston 2 is enclosed within the elongated housing 1 with approximately the same profile

and dimension as the interior profile and dimension of the elongated housing 1 and located near the same end as the opening 3. The piston 2 enclose and seal a viscous substance 4 between the piston 2 and the other end of the elongated housing 1 without any openings but with a scoring 6 such that the elongated housing 1 can be broken open at the scoring 6 when bent. The viscous substance 4 is sealed within the elongated housing 1 until the elongated housing 1 is broken open at the scoring 6 and the piston 2 is urged either by air pressure or physical force to move from its initial position to force the viscous substance 4 out of the elongated housing 1.

Another variation of the embodiment shown in figure 3 utilize a pressure sensitive opening instead of a scoring 6 such that when the piston 2 is urged either by air pressure or physical force to move from its initial position to force the viscous substance 4 against the other end of the elongated housing 1 that is sealed with the pressure sensitive opening, the pressure sensitive opening will open due to the resulting pressure and allow extraction of the viscous substance 4 from the container. The pressure sensitive opening may be created by sealing the end of the elongated housing 1 with just sufficient force to prevent the viscous substance 4 from leaking from the elongated housing 1 but will break the seal if a predetermined amount of pressure is applied to the pressure sensitive seal.

Figure 4 shows another embodiment of the container of figure 3 wherein the opening 3 is covered with a cover 5. The cover 5 will further seal the air chamber under the opening 3 to prevent contaminants from entering into the elongated housing 1 and results in a completely sealed elongated housing 1.

Figure 5 shows another embodiment of the container. The container has an elongated housing 1 with two ends. An opening 3 is located near each of the two ends. Two pistons 2 are enclosed within the elongated housing 1 with approximately the same profile and dimension as the interior profile and dimension of the elongated housing 1 with one piston 3

located under each of the opening 3 thereby sealing the openings 3. The two pistons 2 enclose and seal a viscous substance 4 between them within the elongated housing 1. The viscous substance 4 is sealed within the elongated housing 1 until the pistons 2 are urged either by air pressure or physical force to move from their initial position as shown in figure 6. When the user squeezes either end of the elongated housing 1, the resulting pressure will urge the pistons 3 to slide away from their initial position toward the other end of the elongated housing 1. Since fluids are incompressible, the viscous substance 4 will slide along the elongated housing 1 at the same rate and distance as the pistons 2. Once the piston 2 at the opposite end of the elongated housing 1 slides away from the opening 3 at the opposite end, the viscous substance 4 will exit through the opening 3 at the opposite end of the elongated housing 1 for application. The piston 2 will also scrape the interior surfaces of the elongated housing 1 to completely extract all viscous substances 4 as it slides along the elongated housing 1.

Figure 7 shows another embodiment of the container. The container has an elongated housing 1 with two ends. An opening 3 is located near each of the two ends. Two pistons 2 are enclosed within the elongated housing 1 with a smaller dimension than the interior dimension of the elongated housing 1 and retained at their predetermined locations by a restrictor 7 and located between the two openings 3. The two pistons 2 enclose and seal a viscous substance 4 between them within the elongated housing 1. The viscous substance 4 is sealed within the elongated housing 1 until the pistons 2 are urged either by air pressure or physical force to move from their predetermined position at the restrictor 7. Once the pistons 2 separate from the restrictor 7 they will allow free movement of the viscous substance 4 within the elongated housing 1. As shown in figure 8, depending on the orientation of the container, the viscous substance 4 may exit from either opening 3.

Figure 9 shows another embodiment of the container of figure 7 wherein each of the two openings 3 is covered with a cover 5. The cover 5 will further seal the air chambers under the openings 3 to prevent contaminants from entering into the elongated housing 1 and results in a completely sealed elongated housing 1. Furthermore, the resulting sealed air chamber may be pressurized to a positive pressure or a negative pressure such that when one cover 5 is removed, the air pressure, whether positive or negative, in the remaining sealed air chamber will urge the pistons 2 to slide away from their initial position at the restrictors 7 and allow free movement of the viscous substance 4 within the elongated housing 1 and exit through the opening 3 as shown in figure 10.

CLAIMS

What is claimed is:

1. A container comprising:
an elongated housing with one or more openings;
one or more pistons enclosed within said elongated housing with
approximately the same profile and dimension as the cross sectional profile of the interior of
the elongated housing that will slide along the length of the elongated housing when urged
and separating the interior of the elongated housing into chambers;
wherein the one or more pistons will retain a viscous substance within said
elongated housing separating the viscous substance from one or more air chambers under the
openings, and when the pistons are urged to move from its position the viscous substance will
enter the air chamber and exit through the opening in the elongated housing.
2. A container as in claim 1, wherein the openings on the elongated housing are
covered with covers.
3. A container as in claim 1, wherein the elongated housing has an opening near
one end and a scoring near the other end wherein the container can be broken open at the
scoring to allow the viscous substance contained within said elongated housing to be
extracted by the piston enclosed within said elongated housing after it is urged to move from
it position.
4. A container as in claim 3, wherein the opening on the elongated housing is
covered with a cover.
5. A container as in claim 1, wherein the elongated housing has an opening near
one end and pressure sensitive opening near the other end wherein the container can be
forced open at the pressure sensitive opening to allow the viscous substance contained within

said elongated housing to be extracted by the piston enclosed within said elongated housing after it is urged to move from its position.

6. A container as in claim 5, wherein the opening on the elongated housing is covered with a cover.

7. A container as in claim 1, wherein the openings on the elongated housing are blocked by the pistons enclosed within said elongated housing wherein when the pistons are urged to move from their position the viscous substances will exit through the opening on the elongated housing.

8. A container as in claim 1, wherein the pistons are retained at a retained position at a predetermined location along the length of the elongated housing by a restrictor that reduces the internal cross sectional area of the elongated housing at the predetermined location wherein when the pistons are urged to move from their retained position the viscous substance will exit through the opening on the elongated housing.

9. A container as in claim 8, wherein the openings on the elongated housing are covered with covers.

10. A container as in claim 9, wherein the chambers in the elongated housing are positively pressurized by air pressure wherein after one of the covers are removed, the air pressure in the remaining chamber will urge the pistons to move from their retained position away from the remaining chamber and allow the viscous substance to exit through the opening with the cover removed.

11. A container as in claim 9, wherein the chambers in the elongated housing are negatively pressurized by a partial vacuum wherein after one of the covers are removed, the vacuum in the remaining chamber will urge the pistons to move from their retained position toward it and allow the viscous substance to exit through the opening with the cover removed.

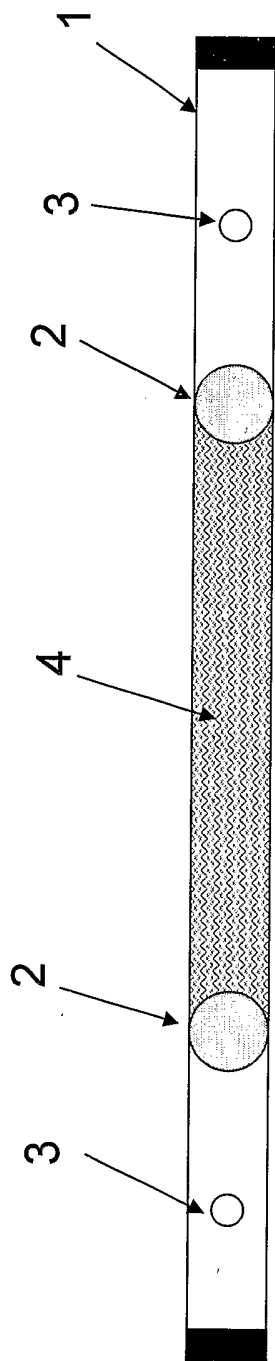


Figure 1

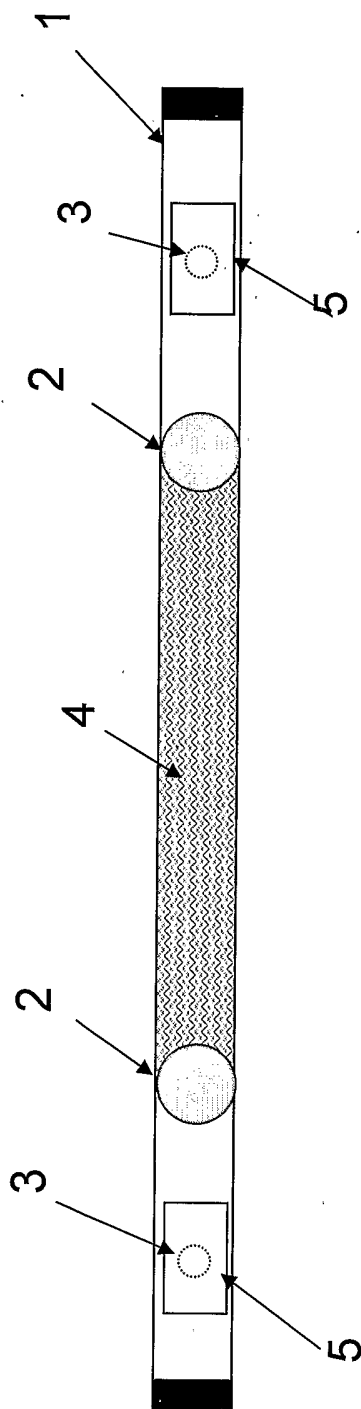


Figure 2

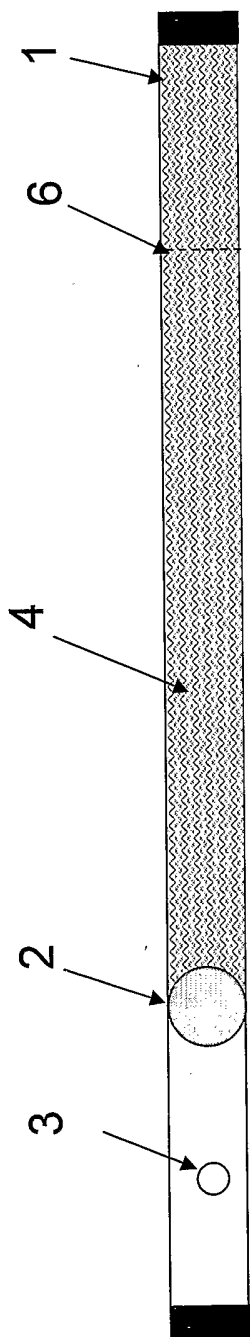


Figure 3

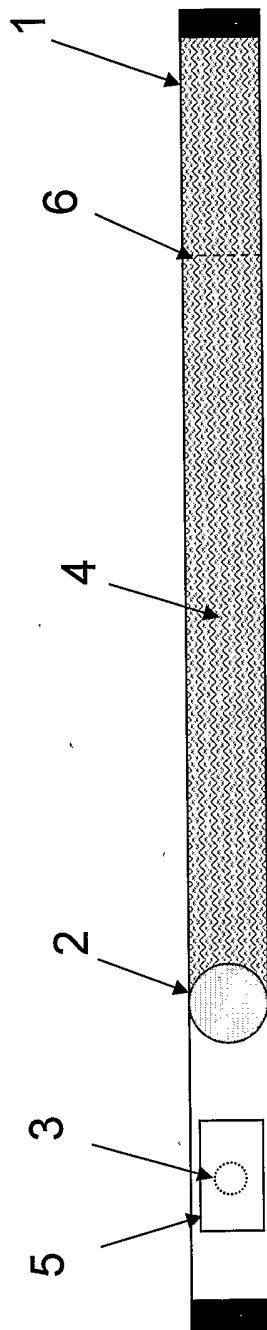


Figure 4

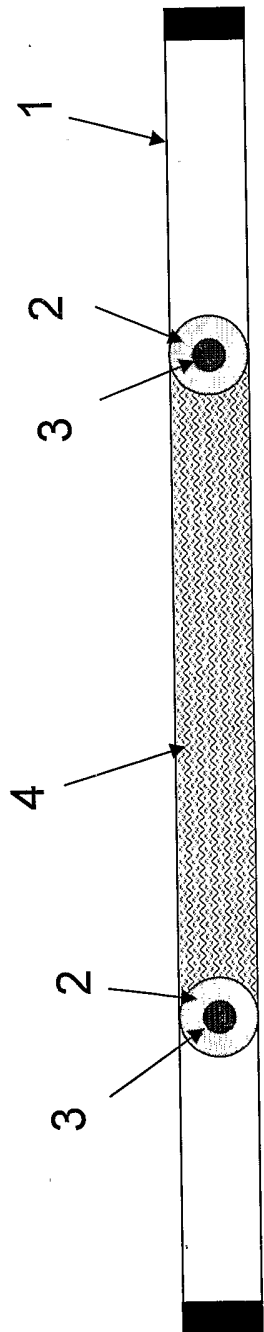


Figure 5

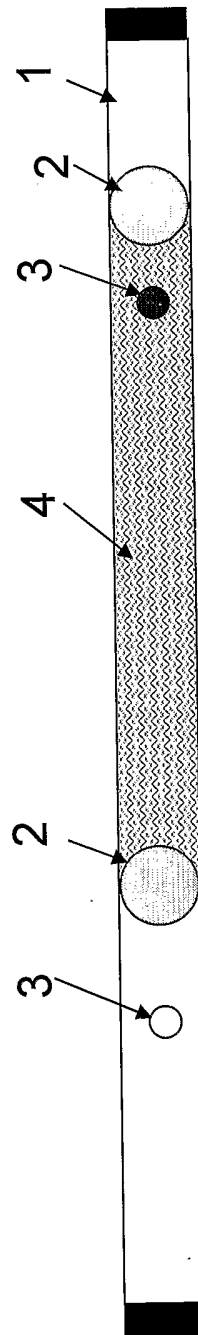


Figure 6

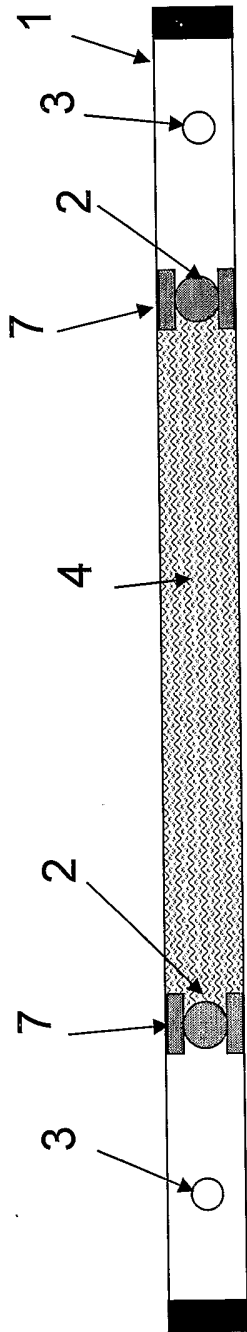


Figure 7

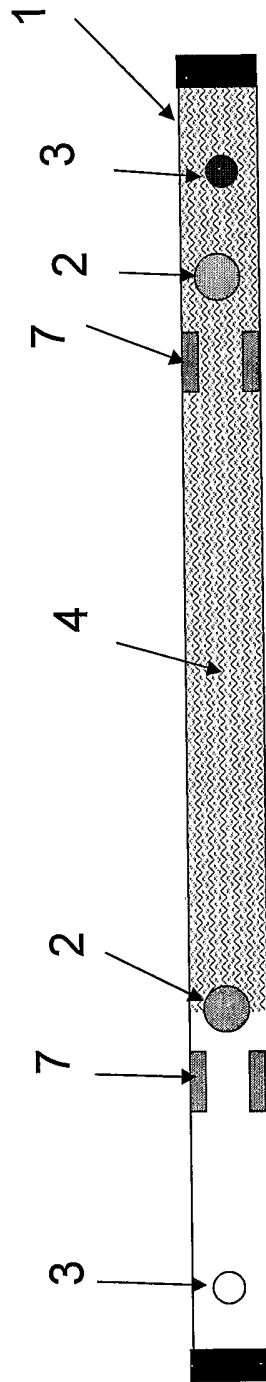


Figure 8

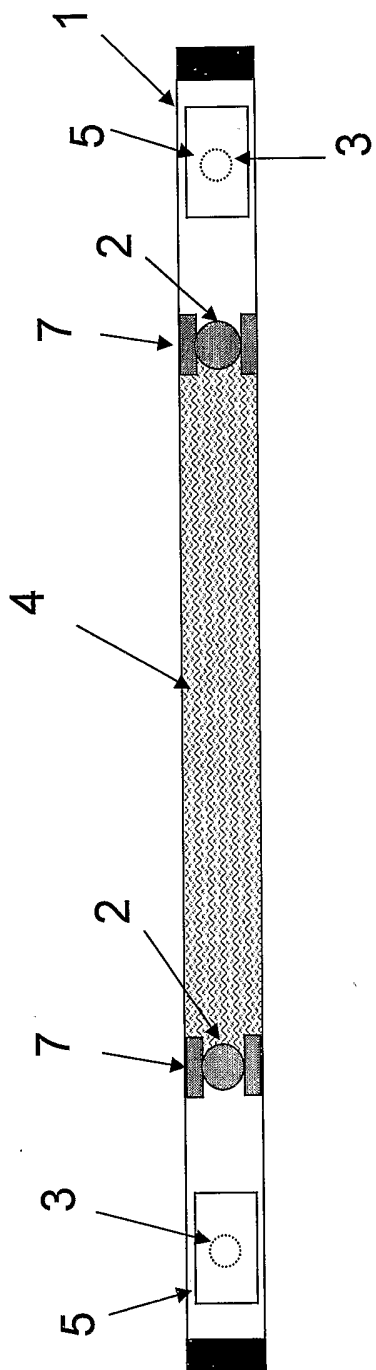


Figure 9

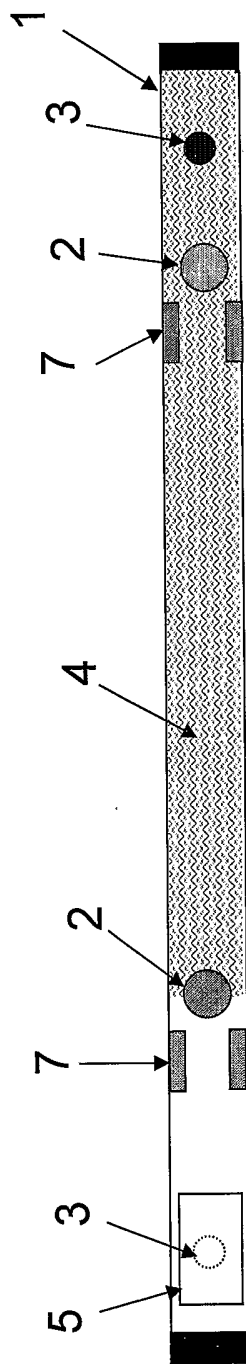


Figure 10

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US02/12694

A. CLASSIFICATION OF SUBJECT MATTER		
IPC(7) :A61M 5/00, 32 US CL :604/90, 195; 220/203.03, 239 According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols) U.S. : 604/90, 195; 220/203.03, 239		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched NONE		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) NONE		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ----- A	US 5,007,903 A (ELLARD) 16 APRIL 1991 (16.04.1991), FIG. 1.	1-4,7 ----- 5-6,8-11
X ----- A	US 4,439,184 A (WHEELER) 27 MARCH 1984 (27.03.1984), COLUMN 2, LINES 5-47, FIG. 6.	1-4, 7 ----- 5-6, 8-11
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.		
"A"	Special categories of cited documents: document defining the general state of the art which is not considered to be of particular relevance	"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
"E"	earlier document published on or after the international filing date	"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
"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)	"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
"O"	document referring to an oral disclosure, use, exhibition or other means	
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Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230		Authorized officer <i>John J. Happe</i> JOHN LEE Telephone No. (703) 308-9797