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(71) Applicant: **OTS S.R.L.**
Via Sismondi, 67
I-20123 Milano(IT)

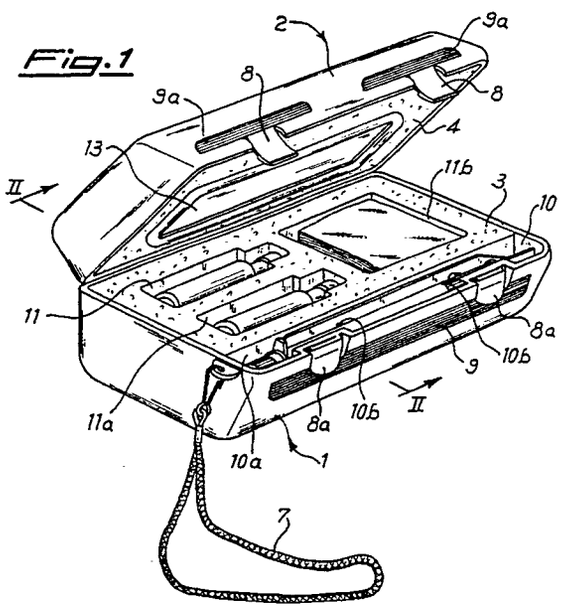
(72) Inventor: **Niada, Gianandrea**
Via Carlo Poma 4
Milano(IT)

(74) Representative: **Adorno, Silvano et al**
c/o SOCIETA' ITALIANA BREVETTI S.p.A. Via Carducci, 8
I-20123 Milano(IT)

(54) Insulated and refrigerated container for transporting medicine vials together with related material.

(57) A portable heat-insulating container comprises two half-boxes (1,2) of hollow shape, hinged to each other and provided with snaps shutting by means of tongues (8), snapping into suitable seats (8a). The lower half-box or base member (1) contains an insulating spongy body (3) as a resin foam pad with recesses (11, 11a, 11b) for housing at least one vial of injectable product and possibly napkins or cotton compresses. The pad (3) is separated from one side of the container by a rib (10a) defining a space (10) for housing a syringe. Also the upper half-box or cover (2) is filled with a spongy body (4) formed with a cavity (12) for housing a dry-ice accumulator cell (13) of known type. Such a container is particularly but not exclusively useful for insulin vials and all what may be necessary for injections to diabetics.

Fig.1



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PORTABLE THERMIC CONTAINER OF INSULIN VIALS AND OTHER MATERIAL FOR INJECTIONS TO DIABETICS AND SIMILAR MEDICINES

The present invention relates to a portable thermal container of medicines or drugs, especially insulin vials and all what may be required (syringe, compresses of cotton soaked with disinfectant, etc.) for injections to be made on persons suffering from diabetes.

It is known that, in order to keep under control the disease, a diabetic person has to assume insulin by injections made at relatively regular intervals throughout the whole day. It is also known that in case of "diabetic coma" undergone by a person suffering from this disease in the most serious cases, e.g. in consequence of alimentary excesses, an immediate intervention on the patient is required by means of an injection of insulin to let him leave the comatose state. For all these events and especially during travels it is convenient or even absolutely necessary that a diabetic carries with him at least one vial of insulin, at least a syringe and generally what is required to make one or more injections.

There exist in the trade portable first-aid set containers, which could be possibly rendered suitable to the above-mentioned needs. However insulin must be kept within a given range of temperature to preserve unaltered its medicinal properties. In particular it should not reach temperatures below 2 ° C and, at least for long periods, exceed a temperature of 8-10 ° C.

Therefore the object of the present invention consists of a portable container that is particularly suitable to this purpose, hence adapted to follow a diabetic during his normal activities throughout a day or in the course of a travel, by keeping its content, in particular insulin, at a temperature comprised in the above mentioned range at least for several hours. Such a container not only is heat insulating, but also shows characteristics of handiness and shock resistance which cause it to be particularly suitable to the mentioned purposes.

The container according to the invention comprises two half-box members hinged to each other and capable of shutting by snap tongues, of which members the base one contains an insulating spongy body having recesses formed therein for housing at least one vial of injectable product and confining toward one side of the container with a rib which defines a space for housing a syringe, also the other upper half-box forming the container cover being filled with a spongy body which has a cavity for housing a dry ice-cell of flat shape.

In a preferred embodiment the portable container according to the invention has two shaped, equal recesses for housing also a second vial of product and a third housing for compresses of cotton, e.g. soaked with disinfectant like alcohol. Furthermore this base member may have, fastened thereto, a flexible handle and, on the side opposite to the hinge one, scores or knurls to make easier its grasping during opening, while corresponding zones similarly treated may be provided on the cover, associated with snap shutting tongues.

Furthermore advantages and features of the container according to the invention will result more clearly from the following detailed description of an embodiment thereof, given by way of a non-limiting example with reference to the annexed drawings in which:

FIGURE 1 shows a perspective view of a preferred embodiment of the container according to the invention; and

FIGURE 2 shows a cross-sectional view along line II-II of the container of Fig. 1, but without the contents of the base element.

The container substantially comprises a lower half-box member 1 providing for the container base and an upper member 2, also of half-box shape, forming the cover thereof. The two members, preferably of antishock plastic material, such as ABS, filled polypropylene, etc. are hinged together e.g. by means of a pair of pins or pegs 6 mutually aligned and inserted in two series of associated holes in protruding zones integrally formed with both half-boxes. At the opposite side there is provided a lock of known type, preferably a snap shutting, such as with tongues which can be snapped into associate seats 8a being provided on the other half-box.

As better shown in Fig. 2, the front closure side of the cover according to the invention is prefe rably of beveled shape for a better ease of handling with respect to a conventional parallelepiped shape. Furthermore, again on the same side, the lower member or base 1 is provided, preferably at the opening zone, transverse scores 9 or in general surface knurls to improve the gripping by the user on opening the container. Similar scores or knurls 9a could be provided on the front side of the cover 2, for example confined to the area surrounding the tongues 8, which are preferably formed on this member, while the associate snap seat 8a is provided on the base 1. The latter is filled with a pad 3 of spongy insulating material such as resin foam in which there are formed, e.g. by punching, recesses 11, 11a, 11b for housing respectively, as shown in Fig. 1, two vials of insulin and a number of detergent compresses or napkins, possibly pre-soaked with disinfectant such as alcohol or the like. It will

be appreciated that the recess 11b could be adapted for housing additional vials of injectable product, in case of need. The size of recesses 11, 11a, 11b are slightly smaller than the article to be contained therein. The aim is of that of housing the respective article, vial or other, with a slight forcing as made possible by the elasticity of material 3. Thus the housed articles are not subject to jolting while the container is handled or even undergoes a possible impact.

According to the embodiment shown in the drawings, the foamed material pad 3 does not fill the whole hollow space of the lower half-box 1, but still slightly forced it is retained, to the front side, by a rib 10a formed e.g. by integral moulding with member 1 and defining with the front side of the container a space 10 in which a syringe can be suitably housed, as shown in Fig. 1, preferably resting on two transverse ribs 10b.

Also the upper half-box or cover 2 comprises a foamed material pad 4 of a slightly larger size that the box, so as to be slightly forced therein. It has a central hollow space 12, substantially rectangular, for housing a dry ice accumulator cell 13, of known type, preferably having a flat shape and rounded edges for an easier insertion in the cavity 12. It is known that cells of this type can be kept for a given period of time in cold generating apparatus such as freezers and the like, whereupon they can be used by remaining for a long time at a low temperature. Of course the freezing effect will last for a longer period of time when the insulation of the surrounding room is better, as given in this case by the layers of heat insulating spongy material. As seen at Fig. 2 the latter substantially fills up the whole container, except for hollows 11, 11a, 11b containing the products to be kept at a controlled temperature and 12 for housing the dry ice cell. Less important is that also the syringe is kept at a given temperature, whereby the cavity 10 will not be particularly insulated.

Advantageously there is further provided a flexible handle 7 being fastened to a corner of the container, in particular of its base 1, for an easier hand carrying, as the user's writ can be inserted at the inside of said handle 7.

It should be noted that, although the container of the present invention has been described hitherto for carrying insulin vials and what is needed to inject this substance to a diabetic, is is also suitable to contain any other medicine which has to be kept at a determined temperature, in particular vaccines, serums or the like.

Claims

1. A portable thermic container of insulin vials and all what is necessary for injections to diabetics, as well as similar medicines, characterized in that it comprises two half-box members (1,2) hinged to each other and capable of shutting by snap tongues (8) in suitable seats (8a), of which the base member (1) contains an insulating spongy body (3) having recesses (11, 11a, 11b) formed therein for housing at least one vial of injectable product and confining toward one side of the container with a rib (10a) adapted to define a space (10) for housing a syringe, the other upper half-box (2) forming the container cover, being also filled with a spongy material (4) which has a cavity (12) for housing a known dry ice-cell (13) of flat shape.

2. A container according to claim 1, characterized by being provided with two equal recesses (11, 11a) in the spongy body (3) of the lower half-box (1) for housing two vials of injectable product, as well as a third recess (11b) for housing napkins or cotton compresses, possibly pre-soaked with disinfectant or adapted to housing of additional vials.

3. A container according to claim 1 or 2, characterized by comprising in correspondence with the opening side, at least on the lower half box (1), scores or knurls (9) to improve the grasping of the container itself upon opening.

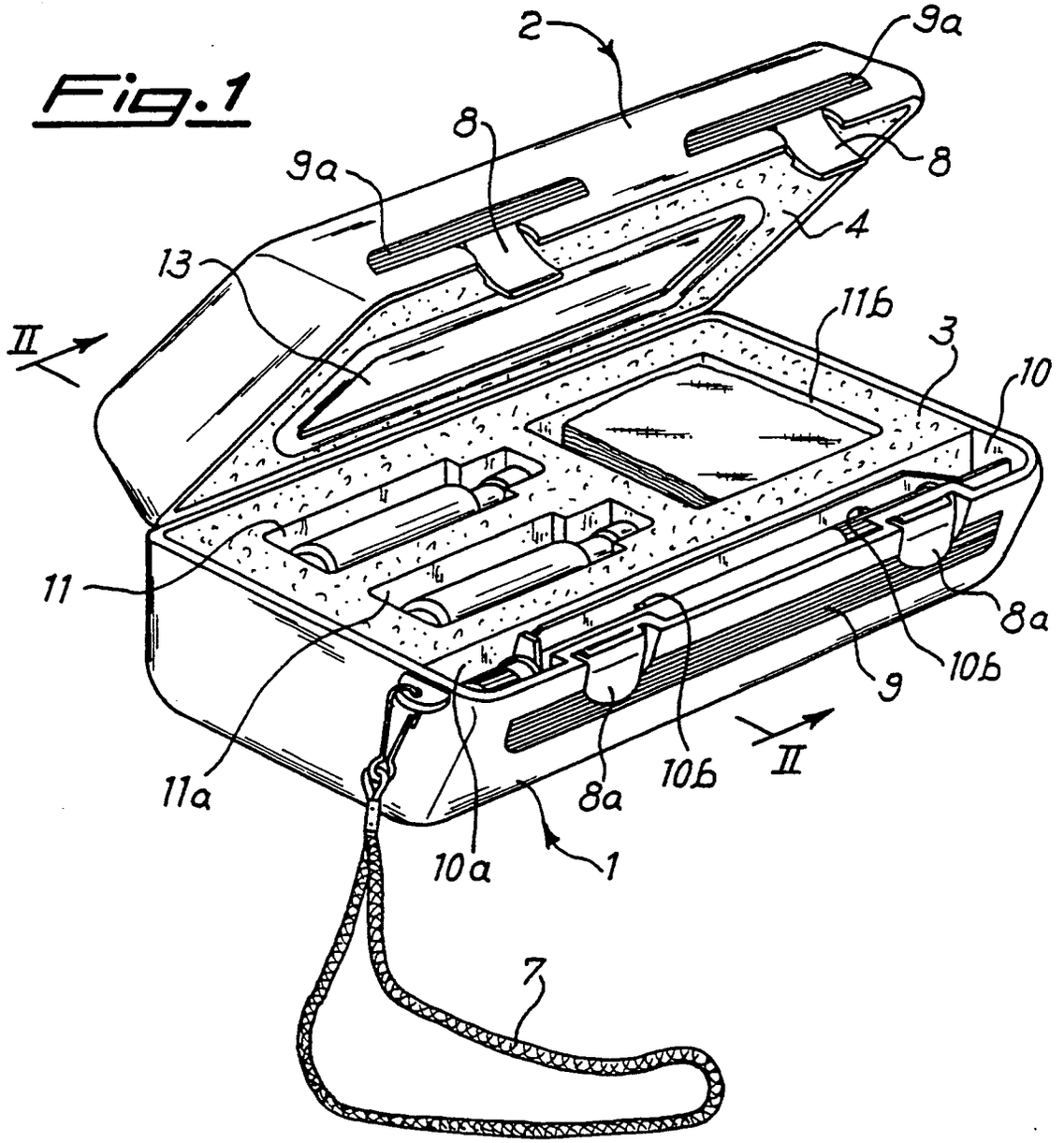
4. A container according to claim 3, characterized by comprising scores or knurls (9a) also on the upper half-box (2), in correspondence with opening tongues (8).

5. A container according to one or more of the preceding claims, characterized by having a beveled shape at the side opposite to the hinge side, both the front sides of the lower (1) and upper (2) half-box being inclined outwardly until the edge along which they mate when closed.

6. A container according to one or more of the preceding claims, characterized by comprising a flexible handle (7), fastened to said lower half-box (1).

7. A container according to claim 1, characterized in that said space (10) is restricted on the bottom by two transverse ribs (10b) supporting the syringe.

Fig.1


2
9a
8
8
9a
4
13
II
11b
3
10
11
8a
10b
9
II
11a
8a
10b
10a
1
7

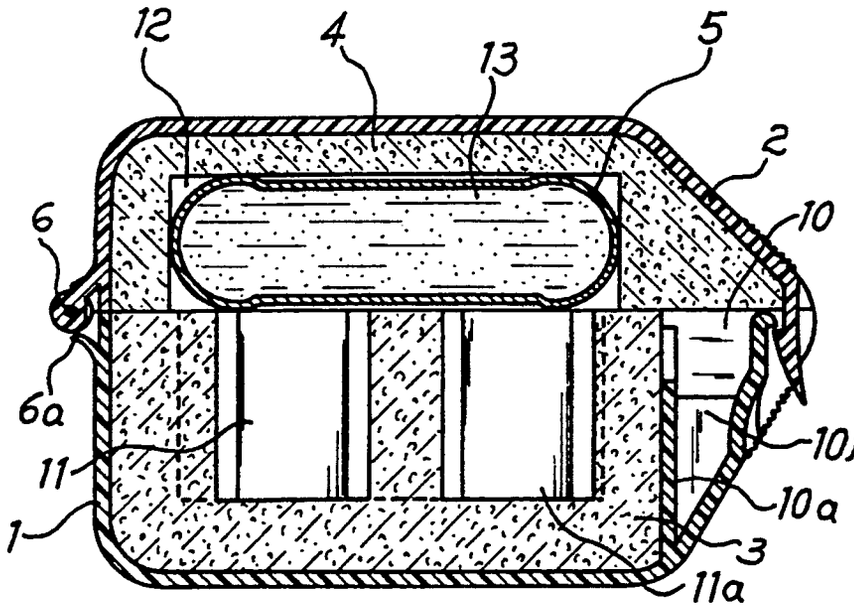

12
4
13
5
2
10
6
6a
11
1
10b
10a
3
11a

Fig.2

European Patent Office

EUROPEAN SEARCH REPORT

Application Number

EP 90 83 0134

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
A	GB-A-1 017 324 (JENTIS) * Page 1, line 62 - page 2, line 70; page 3, line 129 - page 4, line 14; figure 5 *	1	A 61 J 1/16 B 65 D 81/18 F 25 D 3/14
A	US-A-4 322 954 (SHEEHAN et al.) * Abstract *	1	
A	FR-A-1 394 113 (LA CARBONIQUE) * Abstract, points 1,2 *		

TECHNICAL FIELDS SEARCHED (Int. Cl.5)

A 61 J
B 65 D
F 25 D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	29-06-1990	BRIDAULT A.A.Y.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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