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# Datasheet for the decision of 7 August 2007

**Case Number:** T 1071/05 - 3.2.02

**Application Number:** 96908807.9

**Publication Number:** 0814746

**IPC:** A61H 31/00

**Language of the proceedings:** EN

**Title of invention:**
Improved vest design for a cardiopulmonary resuscitation sytem

**Applicant:**
THE JOHNS HOPKINS UNIVERSITY, et al

**Opponent:**
-

**Headword:**
-

**Relevant legal provisions:**
EPC Art. 52(1), 56

**Keyword:**
"Inventive step - (yes, after amendment)"

**Decisions cited:**
-

**Catchword:**
-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

**Case Number:** T 1071/05 - 3.2.02

# D E C I S I O N
**of the Technical Board of Appeal 3.2.02**
**of 7 August 2007**

**Appellant:** THE JOHNS HOPKINS UNIVERSITY, et al
720 Rutland Avenue
Baltimore
MD 21205-2109 (US)

**Representative:** Whiting, Gary
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**Decision under appeal:** **Decision of the Examining Division of the European Patent Office posted 17 February 2005 refusing European application No. 96908807.9 pursuant to Article 97(1) EPC.**

**Composition of the Board:**

**Chairman:** T. Kriner
**Members:** S. Chowdhury
E. Dufrasne

## Summary of Facts and Submissions

I. This appeal is against the decision of the examining division dated 17 February 2005 to refuse European patent application No. 96 908 807.9.

The application was refused on the grounds that the subject-matter of claim 1 then on file did not involve an inventive step.

The following documents were cited during the examination procedure:

D1: US-A-5 277 194

D2: US-A-4 664 098

D3: US-A-4 928 674

D4: FR-A-2 045 451.

II. On 27 April 2005 the appellant (applicant) lodged an appeal against the decision and paid the prescribed fee on the same day. On 27 June 2005 a statement of grounds of appeal was filed.

III. The appellant requests that the decision under appeal be set aside and that a patent be granted on the basis of the following documents:

Claims 1 to 6 filed with telefax dated 6 August 2007.
Claims 7 to 18 filed with letter dated 7 July 2007.

Description pages 1, 3 to 6, and 9 as published.

Description page 2a filed with letter dated 7 July 2007.
Description pages 2, 7, and 8 filed with telefax dated 6 August 2007.

Figures sheets 1/8 to 5/8 and 7/8 to 8/8 as published.
Figure sheet 6/8 filed with telefax dated 6 August 2007.

IV. Independent claim 1 reads as follows:

"An inflatable vest (10) suitable for use in cardiopulmonary resuscitation of a person and arranged to fit circumferentially around said person's chest, the vest comprising: a belt (18) having a width to cover a substantial portion of the person's chest and having a length sufficient to at least extend circumferentially around the chest; and a bladder (22) secured to the belt (18), formed of an inextensible material and being capable of radial expansion, wherein, in use, the bladder (22) defines a chamber between the belt and said person's chest, characterised in that: the belt is formed of an inextensible material and is adapted to be secured circumferentially around said person's chest; and the bladder (22) is arranged to expand when filled with compressed air, first to conform to the person's dimensions and then to apply circumferential pressure against said person's chest".

Claims 2 to 18 are dependent claims.

## Reasons for the Decision

1. The appeal is admissible.

2. *Amendments*

Claim 1 is based on claim 1 as originally filed and amplified in order to include essential features of the invention. In particular, the claim states that the belt and the bladder are formed from an inextensible material, which is supported by original claims 8 and 2, respectively.

The dependent claims are also based on the original claims, and the description has been rendered consistent with the new claims. The amendments meet the requirement of Article 123(2) EPC.

3. *Clarity*

Claim 1 defines an inflatable vest having a belt which covers a substantial portion of a person's chest and has a length sufficient to at least extend circumferentially around the chest. Thus, claim 1 does indeed define the size of features thereof by reference to a part of the human body, whose size varies considerably between adults and infants, for example.

In practice a clinic or an ambulance would carry a set of such vests, respectively for infants, children, adults, etc., and the medical staff would select a vest that suited a particular patient, it being non-critical, according to the application, that the vest fit the patient exactly (see WO96/28129, page 4, lines 24 to 26). The length of the belt would be matched to the size of the vest and adjusted for a given patient.

Therefore, the Board does not consider claim 1 to be unclear in this respect.

Moreover, it is not clear how else such devices may be defined without restricting the scope of the claim unduly. The wording of claim 1 is such as to define the relative size of vest in order to distinguish the claimed device from devices of the type shown in D2, which apply pressure only locally and in which the pressure applying means cannot be considered to be a vest (see point 5.4 below).

4. *Novelty*

Novelty of the claimed apparatus was not an issue in the decision under appeal. The Board concurs with the examining division in this respect.

5. *Inventive step*

5.1 The technical problem and solution.

The application relates to an inflatable vest for cardiopulmonary resuscitation (CPR) of persons suffering from cardiac arrest. The object of the application is to achieve a vest design which can be easily applied in an emergency situation without having to worry about whether the vest is applied with the correct degree of tightness (page 2, lines 11 and 12 and 24 to 27 of WO96/28129).

The vest comprises a belt of an inextensible material for securing around a person's chest, and a bladder formed of inextensible material secured to the belt and

being capable of radial expansion without ballooning. The belt cooperates with the bladder for rapid mounting and use of the vest. The belt is used to pull the vest under and secure it to the patient, and once in place the bladder of inextensible material can be expanded radially to evenly contact the chest and then apply consistent circumferential compression to the chest (page 4, lines 13 to 19 and page 5, lines 6 to 9).

Thus, how tightly the vest is applied is not critical, which further aids in applying it quickly (page 4, lines 24 to 28 and page 7, lines 6 to 9).

5.2 Closest prior art

D1 does not relate to CPR apparatus, it relates to a breathing pattern monitor. D2 does not describe a vest for CPR apparatus but relates instead to a belt for performing CPR with means for pressing on the sternum only and not substantially the entire front of a person's chest. The problem of rapidly mounting the device is not addressed here explicitly.

Document D3 describes an inflatable vest for CPR (see the abstract, first sentence) which includes a bladder that contacts substantially the entire front of a person's chest (see the embodiment of Figures 8 and 9), and it also addresses the problem of rapid mounting of the vest (column 8, lines 25 to 27). However, this device employs a different solution (column 8, lines 29 to 39) to that of the present application.

The embodiment of Figures 8 and 9 of D4 is a vest suitable for performing CPR, but it is not directed to

the problem of rapid mounting thereof. The embodiment of Figures 10 and 11 does not comprise a vest; it comprises a belt suitable for performing CPR, and is similar to the device of D2.

From the foregoing it is evident that document D3 is the closest prior art document, as stated by the examining division.

5.3 Disclosure of D3

The embodiment of Figures 8 and 9 of D3 comprises an inflatable bladder which extends around the chest and sides of a patient and is secured to a rigid plate which is slid under a prone patient. According to the impugned decision the material of the bladder must be inextensible since it is analogous to a large blood pressure cuff. The examining division has offered no evidence for this assertion, which concerns an essential feature of the present application. The Board is inclined to follow the appellant's counter-argument in this respect that pressure cuffs are typically made of rubber and extensible. It must also be borne in mind that a pressure cuff has a different function to the present vest in that a cuff is used to impede blood flow whereas the present vest is for forcing blood flow out of the lungs and into the heart.

The vest of D3 does not include a belt and the bladder thereof does not define a chamber between a belt and the chest. Instead, the bladder of D3 is wrapped around the torso, and when inflated expands in both directions radially and constricts the torso in so doing.

5.4 Documents D1, D2, and D4

Document D1 does not concern a CPR device; it concerns apparatus for monitoring a breathing pattern. The problem of rapid mounting of the device is not relevant here, nor is there any other incentive for considering this document for the present purpose.

Document D2 describes an inflatable belt-like device for CPR, and includes an inflatable concertinered bladder having a contact surface which contacts only the sternum and it cannot be considered to be a vest. Thus, this document is incompatible with D3 which requires a substantial surface area contact with the chest, which would dissuade the person skilled in the art from combining the teachings of D2 and D3.

Moreover, D2 is not concerned with the technical problem of a vest design which can easily be applied in an emergency situation without regard to how tightly it is fitted; it is more concerned with accurate alignment of the contact surface with the breast bone (column 5, lines 38 to 44).

For these reasons there is no incentive to combine the teachings of D2 and D3 and, moreover, such a hypothetical combination would not solve the present problem.

The same considerations apply to D4. There is no solution offered for the rapid mounting of the vest of the embodiments of Figures of 8 and 9 or the belt embodiment of Figures 10 and 11, nor do these

embodiments address the problem of adjusting the tightness of the device.

None of documents D1, D2, or D4 discloses a belt having a length sufficient to at least extend circumferentially around the chest. Each of these prior art devices has either a discontinuous belt or no belt at all.

Thus, even were D3 to be combined with any of the other documents, the result would not be a device capable of solving the present problem.

5.5 In view of the foregoing considerations the subject-matter of claim 1 involves an inventive step.

## Order

## For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the first instance with the order to grant a patent on the basis of the following documents:

   Claims 1 to 6 filed with telefax dated 6 August 2007,
   Claims 7 to 18 filed with letter dated 7 July 2007.

   Description pages 1, 3 to 6, and 9 as published,
   Description page 2a filed with letter dated 7 July 2007.
   Description pages 2, 7, and 8 filed with telefax dated 6 August 2007.

   Figures sheets 1/8 to 5/8 and 7/8 to 8/8 as published.
   Figure sheet 6/8 filed with telefax dated 6 August 2007.

The Registrar The Chairman

V. Commare T. Kriner