



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) **EP 1 498 154 A2**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
19.01.2005 Bulletin 2005/03

(51) Int Cl.7: **A62B 17/04**, A62B 18/04

(21) Application number: **04015761.2**

(22) Date of filing: **05.07.2004**

(84) Designated Contracting States:
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HU IE IT LI LU MC NL PL PT RO SE SI SK TR**
Designated Extension States:
AL HR LT LV MK

(72) Inventor: **Luppi, Libero**
41037 Mirandola (Prov. of Modena) (IT)

(74) Representative: **Modiano, Guido, Dr.-Ing. et al**
Modiano & Associati SpA
Via Meravigli, 16
20123 Milano (IT)

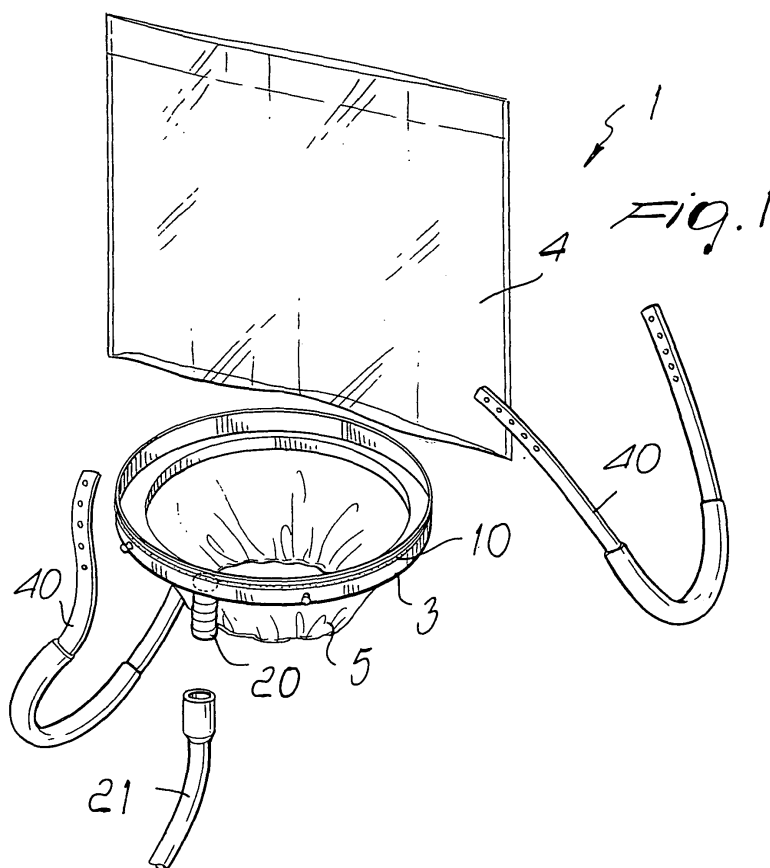
(30) Priority: **14.07.2003 IT MI20031439**

(71) Applicant: **Starmed S.p.A.**
41037 Mirandola (Modena) (IT)

(54) **Personal protection hood with breathing means**

(57) A personal protection hood (1) with means for breathing, which comprises a body (2) that forms an annular element (3) whereto a container (4) is connected which delimits a region for accommodating the head of the user and a collar (5) for resting on the neck and

shoulders of the user, at least one air inlet (20) being further provided on the annular element (3), the container being provided by means of a bag which has at least one accordion-like portion and at least one optically transparent region.



EP 1 498 154 A2

Description

[0001] The present invention relates to a personal protection hood with breathing means.

[0002] As is known, hoods for artificial respiration without the aid of masks or tracheal tubes are already commercially available and are generally constituted by a container body made of optically transparent material, inside which the head of the patient can be accommodated hermetically.

[0003] The container body is provided with an air inlet, which is connected to a ventilation apparatus, and there are also an outlet and a whole series of connectors and elements that extend considerably the versatility and functionality of the hood. These hoods, which are for example of the type disclosed in EP 1170026, assumed included herein by reference, have a type of manufacture and a cost that do not allow to use the hood for providing personal protection to an operator who must for example assist diseased persons or other kinds of person while avoiding potential contagion.

[0004] Moreover, the structure of known hoods, which typically are of the single-patient type, i.e., are used for a long period of time by the same patient, is not suitable, again for cost-related reasons, for short therapies, since its application would not be justified for cost-related reasons.

[0005] The aim of the invention is to solve the problem described above, by providing a personal protection hood with means for breathing that has a minimal structure that allows to isolate the user, for example, in the case of a protective hood, by providing a hood that is practically of the disposable type, since it is reduced to its minimal components, without however thereby compromising its functionality characteristics for the purpose for which it is meant.

[0006] Within this aim, an object of the invention is to provide a protective hood that can be obtained starting from very simple and commonly commercially available elements, so as to contribute to a drastic cost reduction.

[0007] Another object of the present invention is to provide a hood for artificial respiration whenever it is necessary to perform short-lasting therapies with assistance, by providing a hood that is of the disposable type in view of its cost and practicality in use.

[0008] Another object of the present invention is to provide a protective hood that thanks to its particular constructive characteristics is capable of giving the greatest assurances of reliability and safety in use.

[0009] This aim and these and other objects that will become better apparent hereinafter are achieved by a personal protection hood with means for breathing, according to the invention, comprising a body that is provided with an annular element whereto a container is connected which delimits a region for accommodating the head of the user and a collar for resting on the neck and shoulders of the user, at least one air inlet being further provided on said annular element, characterized

in that said container is constituted by a bag which has at least one accordion-like portion and at least one optically transparent region.

[0010] Further characteristics and advantages of the present invention will become better apparent from the description of a preferred but not exclusive embodiment of a personal protection hood with means for breathing, illustrated by way of nonlimiting example in the accompanying drawings, wherein:

Figure 1 is a schematic exploded perspective view of the personal protection hood;

Figure 2 is a schematic perspective view of the personal protection hood in operating conditions;

Figure 3 is a schematic side view of the protection hood worn by an operator who is wearing a suit;

Figure 4 is a sectional view of the connection between the annular element and the container;

Figure 5 is a view of the detail of the accordion-like portion of the bag;

Figure 6 is a schematic perspective view of a hood for artificial respiration;

Figure 7 is a perspective view of the hood worn by the patient.

[0011] With reference to the figures, and particularly to Figures 1 to 5, the protection hood, generally designated by the reference numeral 1, comprises a body, generally designated by the reference numeral 2, which is provided with an annular element 3 whereto a container 4 that delimits a region for accommodating the head of the user is connected, and a collar 5, which in practice rests on the neck and shoulders of the user.

[0012] A first feature of the invention consists in that the container 4 is formed by a bag made of transparent plastics, such as for example polyvinyl chloride, polypropylene, polythene, polyamide, cellulose in its ether and ester derivatives, and others, in order to provide optimum transparency together with good mechanical strength; tests have demonstrated that a thickness comprised between 30 and 100 microns is recommendable.

[0013] The container 4 is connected to the annular element 3, which is made of rigid plastics and can be obtained monolithically by assembling a plurality of components.

[0014] Advantageously, the bag is hermetically connected to the annular element 3 by way of connection means, provided by thermal bonding or by using a coupling that provides for an elastic layer 10 that is inserted in a seat 11 formed in the element 3, on which the container 4 is superimposed, said container being fixed by means of an outer ring 12 that is constituted for example by a plastic strap or other similar element.

[0015] In this embodiment, the strap provides a mechanical compression that allows, by way of particularly simple means, to achieve the intended coupling.

[0016] In order to provide a comfortable containment region for the user, the bag has at least one accordion-

like portion, and in a preferred embodiment such accordion-like portion is arranged on the bottom and is obtained by means of a flap 15 that is folded toward the inside of the bag and is heat-sealed along the longitudinal edges of the bag.

[0017] The presence of the accordion-like portion is particularly important, since it allows, when air is introduced, to obtain a configuration that is approximately cylindrical despite providing the container by means of a low-cost bag.

[0018] At least one inlet 20 is formed in the annular element 3 and is connected to a duct 21 for introducing air.

[0019] The collar 5 is preferably but not necessarily connected by thermal bonding to the annular element, and in practice is designed to rest around the neck and shoulders of the user, who advantageously is dressed in a protective suit.

[0020] The suit, which is normally fastened at the neck level, allows air seepage so that the air that is introduced in the hood is vented with a resistance that maintains a certain positive pressure inside the hood.

[0021] The protection hood is advantageously worn by placing the inlet in the rear part, so that the hose for feeding air does not cause hindrance to the operator.

[0022] The same constructive criteria can be used if one wishes to obtain an artificial respiration hood 1 for short-lasting therapies with assistance; in this case, as shown in Figures 6 and 7, it is sufficient to further provide at least one air outlet, designated by the reference numeral 30, which is provided with a one-way valve that controls the outflow of the air.

[0023] In both embodiments, straps 40 are provided that are connected to the hood, under the armpits of the user, so as to prevent the pressure of the air introduced in the hood from causing an accidental removal of the hood.

[0024] The arrangement described above allows to obtain a hood that has a very low cost, since the container portion is provided by means of a simple normally commercially available bag, which thanks to its type and to the presence of the accordion-like portion, can be sufficiently transparent for the operator and can also undergo deformation so as to provide, around the face of the user, a region that is conveniently large and spread out, so as to avoid inconveniencing the operator with undue contact between the bag and the face of the operator.

[0025] From what has been described above it is thus evident that the invention achieves the intended aim and objects, and in particular the fact is stressed that a single-use product having a particularly low cost is provided which is excellently suited both for cases in which it is necessary to provide individual protection and for cases in which it is necessary to provide an artificial respiration hood for short-lasting therapies in which assistance is provided and in which the use of a more complex and sophisticated hood, such as for example the one

disclosed in the previously cited patent, is not justified.

[0026] The invention thus conceived is susceptible of numerous modifications and variations, all of which are within the scope of the appended claims.

5 [0027] All the details may further be replaced with technically equivalent elements.

[0028] In practice, the materials used, so long as they are compatible with the specific use, as well as the contingent shapes and dimensions, may be any according to requirements.

10 [0029] The disclosures in Italian Patent Application no. MI2003A001439, from which this application claims priority, are incorporated herein by reference.

[0030] Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

Claims

- 25 1. A personal protection hood (1) with means for breathing, comprising a body (2) provided with an annular element (3) whereto a container (4) is connected which delimits a region for accommodating the head of the user and a collar (5) for resting on the neck and shoulders of the user, at least one air inlet (20) being further provided on said annular element (3), **characterized in that** said container (4) is constituted by a bag which has at least one accordion-like portion and at least one optically transparent region.
- 30 2. An artificial respiration hood (1) for short-lasting therapies with assistance, comprising a body (2) provided with an annular element (3) whereto a container (4) is connected which delimits a region for accommodating the head of the user and a collar (5) for providing a seal on the neck and shoulders of the user, said annular element (3) being further provided with at least one air inlet (20) and at least one outlet (30) for the connection of a one-way air vent valve, **characterized in that** said container is constituted by a bag with at least one accordion-like portion and at least one optically transparent region.
- 35 3. The hood according to one of the preceding claims, **characterized in that** said bag has a thickness comprised between 30 and 100 microns.
- 40 4. The hood according to one or more of the preceding claims, **characterized in that** said bag is made of optically transparent material.
- 45 5. The hood according to one or more of the preceding
- 50
- 55

claims, **characterized in that** said accordion-like portion is provided at the bottom of said bag.

6. The hood according to one or more of the preceding claims, **characterized in that** said accordion-like portion is obtained from a flap (15) of the bottom, which is folded inwardly and heat-sealed along the longitudinal edges of said bag. 5
7. The hood according to one or more of the preceding claims, **characterized in that** said bag is made of plastics selected among polyvinyl chloride, polypropylene, polyethylene, polyamide and cellulose in its ether and ester derivatives. 10 15
8. The hood according to one or more of the preceding claims, **characterized in that** it comprises means for connecting said bag to said annular element (3), which are constituted by a coupling that forms an elastic layer (10) that is accommodated in a seat (11) provided on the outer surface of said annular element (3), said bag being positioned on said elastic layer and being retained in position by means of an outer ring (12). 20 25
9. The hood according to claim 8, **characterized in that** said outer ring (12) is constituted by a strap (40) made of plastics.
10. The hood according to one or more of the preceding claims, **characterized in that** said air inlet (20) is arranged in the rear part thereof. 30 35 40 45 50 55

