

(19)



Europäisches Patentamt

European Patent Office

Office européen des brevets

(11) Publication number:

**0 202 414
A2**

(12)

EUROPEAN PATENT APPLICATION

(21) Application number: 86103537.6

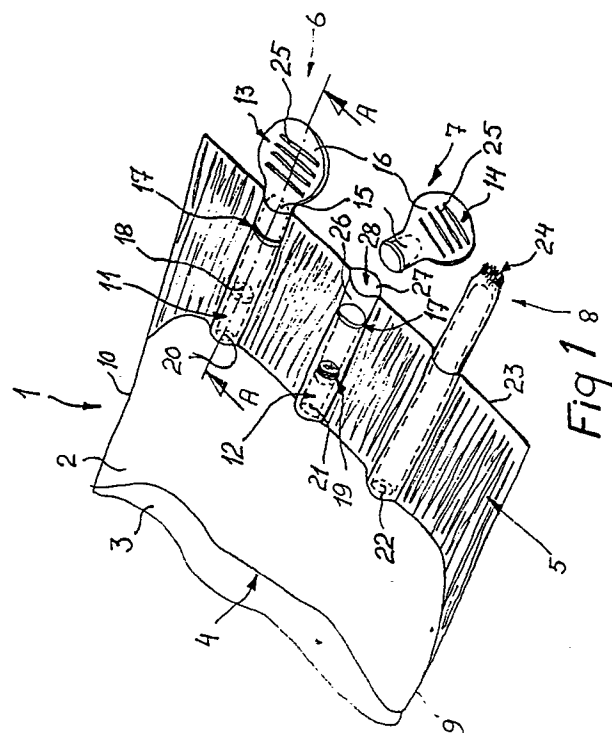
(51) Int. Cl.4: **A61J 1/00**

(22) Date of filing: 15.03.86

(30) Priority: 26.03.85 FI 851195

(43) Date of publication of application:
26.11.86 Bulletin 86/48(64) Designated Contracting States:
AT BE CH DE FR GB IT LI LU NL SE(71) Applicant: **Hantaaki Oy**
Yliopistonkatu 50
SF-33100 Tampere(FI)(72) Inventor: **Ikonen, Juhani**
Kärpänkuja 1
SF-33880 Sääksjärvi(FI)
Inventor: **Suominen, Heikki S.**
Sipinkuja 3
SF-33730 Tampere(FI)(74) Representative: **Siebmans, Hubertus et al**
Göteborgs Patentbyrå AB Box 154
S-561 22 Huskvarna(SE)(54) **Connecting port.**

(57) A connecting port, intended e.g. for a container filled with a liquid used in infusion. The connecting port (6, 7) of plastic material comprises a channel part (11, 12) with a breakable member (18, 19), the said channel part (11, 12) being located at least partly between the edge seam (5) of the plastic film wall parts (2, 3) of the container (1), and a covering part (13, 14) in connection with the channel part (11, 12). The channel part (11, 12) and the covering part (13, 14) are substantially located one after another and the point of junction (17) between them lies in the area of the edge seam (5) between the wall films (1, 2). The closing part (15) of the covering part (13, 14) is at least partly placed in a space (28) limited by the parts (26, 27) of the wall films (1, 2) and forming a prolongation of the channel part (11, 12). Through the space (28) the channel part (11, 12) is in connection with the edge (23) of the container (1) after the covering part (13, 14) has been removed.

**EP 0 202 414 A2**

Connecting port

This invention relates to a connecting port intended especially for medical purposes, such as a container filled with a liquid used in infusion. The connecting port of plastic material comprises a channel part with a breakable member, the said channel part being located at least partly between the edge seam of the plastic film wall parts of the container. By piercing the breakable member an access is gained to the liquid contents of the container through the channel part for emptying the container or for adding the medicament. Separate connecting ports for abovementioned purposes are generally arranged especially in the containers used for infusion. Further the connecting port comprises a covering part in the connection with the channel part. The covering part protects the channel part during the storage of the container from contaminations and it is removed when the connecting port is used. Further the container also comprises a filling tube, through which the container is filled with a liquid, such as a infusion liquid. The filling tube is closed after the liquid space of the container has been filled.

The type of the container used for infusion described hereinabove is known from British Patent No. 1 428 373. In the container according to this specification the channel part and the covering part of the connecting port are nested concentrically so, that the covering part is placed in that tubular part of the channel part, which is directed from the breakable member towards the outer edge of the edge seam. The outer end of the channel part is located outwards from the outer edge. The covering part has mainly a cylindrical shape and it is supported at its bottom part to the breakable member and at its cylindrical lateral surface to the inner surfaces of channel part. Further the covering part has a collar flange, which has a groove, which faces the outer end of the channel part and into which the said outer end of the channel part fits.

The hereinabove described connecting port structure has several both structural and functional drawbacks. In the first place the covering part has a relatively complicated structure and from the productional point of view the placing of the covering part into the channel part causes difficulties. Also from the user's point of view there are drawbacks, namely the detaching of the covering part is troublesome, because the covering part has no grip member with such a design which would make it easy to take hold of it and thus create a force required for detaching the covering part. Particularly for abovementioned reasons and for the reason, that the outer end of the channel part is

placed outwards from the outer edge, a great risk of contamination is always involved in the detachment of the covering part, because the fingers of the user in any case are very near the outer end of the channel part.

The purpose of this invention is to present a connection port, which makes it possible to avoid the abovementioned drawbacks to the greatest extent and thus advance the state of the art in this field. For achieving this purpose the connecting port according to the invention is mainly characterized in, that the channel part and the covering part are substantially located one after another, that the point of junction between them lies in the area of the edge seam between the wall films and that the closing part of the covering part is at least partly placed in a space limited by the parts of the wall films and forming a prolongation of the channel part, the channel part being in connection with the edge of the container through the said space after the covering part has been removed. With the construction described hereinabove a both simple and reliably functioning connecting port is obtained, which can be easily removed without a risk of contamination.

Other characteristics of the invention have been described in the accompanying subclaims, wherein some preferred embodiments of the invention are presented.

The invention and its advantages are explained in more detail in the following description with simultaneous references to the accompanying drawings, wherein

Fig. 1 is a perspective view of the end of the container with the connecting ports according to the invention attached thereto and

Figs. 2 and 3 are longitudinal sectional views (section A-A in Fig. 1) of some preferred embodiments of the connecting port according to the invention.

With reference to Fig. 1 a container 1 comprises wall films 2 and 3, attached to each other in order to form a closed packing space 4. The blank, of which the container is formed, is tubular. The container must have two side seams 5, in the both ends of the container, whereby the connecting ports 6, 7 and the filling tube 8 are placed preferably at one of the side seams (according to Fig. 1). In the side seam located on the opposite side a

hold can be formed for suspending the container from a hanger. If the films 2 and 3 are constituted by two separate pieces of film, the films are attached together also at side edges 9 and 10.

The connecting ports 6 and 7 comprise channel parts 11, 12 and covering parts 13, 14. The covering parts 13, 14 comprise further a closing part 15 and a grip member 16. The channel parts 11 and 12 and the closing parts 15 of the covering parts 13, 14 joined together by means a point of junction 17. The point of junction 17 is placed in the area of the edge seam 5 between the wall films 2 and 3. The diameters of the channel parts 11 and 12 and of the closing parts 15 are preferably equal at least in the area of the edge seam.

The connecting port 6 is a so-called emptying port, whereby the breakable member 18 inside its channel part 11 is a plastic membrane, which can be pierced with the needle of the dispensing device. The connecting port 7 is a so-called addition port, through which additive medicaments can be introduced. The breakable member 19 inside the channel part 12 of this connecting port 7 comprises a self-sealing member like a part made of rubber, which after the introduction of the additive seals the hole formed by the needle. The inner ends 20 and 21 of the channel parts 11 and 12 are in connection with the liquid contents of the container. The container in Fig. 1 is filled with liquid through the filling tube 8. The inner end 22 of the same is in connection with the packing space 4 of the container and the outer end of the same is located outwards from the edge 23 of the container. After the filling of the container the end 24 of the filling tube 8 is sealed.

The grip members 16 of the covering parts 13 and 14 are made broad in the radial direction and their main plane is placed substantially in the direction of the plane of the edge seam 5. Roughings 25 are formed on the outer surfaces of the relatively thin platelike grip members 16. The grip member 16 can be located at the edge 23 of the container or separated from it, depending on the length of the closing part 15, in other words on its possible extension outwards from the edge.

Fig. 2 shows the connecting port 6 of Fig. 1 in more detail as a longitudinal section. In order to make the structure more clear the parts of the films 2 and 3 at the edge seam 5 are drawn to lie separate from the connecting port 6. In the area of the edge seam 5 outside the connecting ports the films 2 and 3 are attached to each other with a suitable way, e.g. by high-frequency sealing, heat sealing or gluing and at the connecting ports 6 and 7 the parts of both the film 2 and the film 3 are

11, 12 for instance by one of abovementioned processes. The area of such attachment lies between the breakable member 18 or 19 and the point of junction. From the point of junction 17 to the edge 23 of the container, the attachment between the parts 26, 27 at the edge seam 5 of the wall films 2 and 3 and the closing part 15 of the covering part 13, 14 is a frictional contact, which is based on the relatively tight contact between the outer surface of the closing part and the inner surfaces of the film parts 26 and 27, the contact being generated e.g. when the edge seam is formed. When the covering part is removed, as in Fig. 1 the covering part 14 of the addition port 7, the parts 26, 27 of the films 2 and 3 form a space 28 with its open end at the edge 23 of the container. Thus the parts 27 and 28 form a prolongation of the channel part 11.

The point of junction 17 between the outer end 29 of the channel part 11, 12 and the end of the closing part 15 opposite to the grip member 13, 14 of the closing part 15 can be an annular thinning 31 according to Fig. 2, the thinning being formed by means of a groove 32 between the ends 29 and 30. The thickness of the wall of the channel part and the closing part is thus substantially greater than the thickness of the thinning.

In the embodiment presented in Fig. 3 the principal structure of an addition port for medicaments is illustrated, whereby the channel part 12 comprises a breakable member 19 with a self-sealing part, e.g. a rubber part. The ends 29 and 30 are joined together (point of junction 33) with an abutment joint by gluing or only by the force created by the friction between the parts of film 26, 27 and the closing part 15. When the covering part is detached, the connection between it and the channel part is broken at the point of junction 31 or 33.

Especially when the seaming technique is employed in attaching the connecting port, it is preferable, that the closing part 15 is tubular and the forming of the grip member is carried out after the joining electrode, with which the channel part and the parts of the wall films 2 and 3 at the channel part (between the breakable member 18 or 19 and the point of junction) have been attached to each other, is removed out of the closing part 15, through which the electrode has been brought inside the channel part 11. The shaping of the grip member can thereby be carried out with the aid of sealing technique, for instance high-frequency sealing, because the connecting port blank is made of thermoplastic material. If the blank of the covering part is made by injection moulding, it is possible to prepare the grip member to the substantially final shape, whereby it comprises a hole in connection

with the hole in the closing part 15, through which holes the electrode introduced into the channel part to reach the section of attachment. The hole in the grip member is closed after the electrode has been removed.

The connecting port is opened by taking hold of the grip member 16 with one hand. The grip member is wide and it extends outwards from the outer edge 23 of the edge seam 5, thus making it easier for the user to take hold of it. For creating the counterforce required in the detachment, the user may take hold of the channel part at the edge seam with the other hand. Moreover, the opening of the channel part is well protected during the storage of the container, and when the covering part is detached from the channel part, the user does not get direct contact with the outer end of the channel part, because the parts 26 and 27 of the plastic film layers protect the outer end of the channel part. Moreover, after the covering part 13, 14 is detached, the said parts 26 and 27 of the film layers form tubular directing space 28, which starts at the edge 23 of the container and has the channel part as its prolongation. The connecting port according to the invention is thus very well protected against both the contaminations and mechanical stresses.

It must be noted, that the invention relates to a connecting port, whereby a container comprising a connecting port according to the invention, especially an emptying port, can comprise an addition port for medicaments of also another kind, such as some addition port for medicaments known in FI-patents 64780 and 67482.

Claims

1. A connecting port intended especially for medical purposes, such as a container filled with a liquid used in infusion, the connecting port (6, 7) of plastic material comprising a channel part (11, 12) with a breakable member (18, 19), the said channel part (11, 12) being located at least partly between the edge seam (5) of the plastic film wall parts (2,

3) of the container (1), and a covering part (13, 14) in connection with the channel part (11, 12), **characterized** in that the channel part (11, 12) and the covering part (13, 14) are substantially located one after another, that the point of junction (17) between them lies in the area of the edge seam (5) between the wall films (1, 2) and that the closing part (15) of the covering part (13, 14) is at least partly placed in a space (28) limited by the parts - (26, 27) of the wall films (2, 3) and forming a prolongation of the channel part (11, 12), the channel part being in connection with the edge (23) of the container (1) through the said space (28) after the covering part (13, 14) has been removed.

2. The connecting port according to claim 1, **characterized** in that the closing part (15) is tubular.

3. The connecting port according to claims 1 and 2, **characterized** in that the diameters of the closing part (15) and of the channel part (11, 12) are equal at least in the area of the edge seam (5).

4. The connecting port according to claims 1 and 2, **characterized** in that the point of junction (17) is a thinning (31), joining the ends (29, 30) of the channel part (11, 12) and the closing part (15) of the covering part (13, 14) together.

5. The connecting port according to claims 1 and 2, **characterized** in that the point of junction (17) is an abutment joint (33) between the ends (29, 30) of the channel part (11, 12) and the closing part (15) of the covering part (13, 14).

6. The connecting port according to claim 1, **characterized** in that the grip member (16) of the covering part (13, 14) is a platelike, thin element located substantially in the plane of the edge seam (5).

7. The connecting port according to claim 6, **characterized** in that the grip member (16) has roughings (25).

50

55

4

