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(54) Glove and method for the manufacture of such glove.

(57) Glove, consisting of at least three envelopes, respectively a first envelope (3), a second envelope (4) which is around the first envelope (3) and a third envelope (5) which is around the second envelope (4), characterised in that the second envelope (4) is watertight ; that the glove (1) is provided with at least one attachment (6) in order to connect the three envelopes (3, 4,' 5) together ; and that, in order to form the above mentioned attachment (6), the second envelope (4) is for this purpose provided with at least two lip-shaped parts, respectively a first lip-shaped part (7)- on the inside of the second envelope (4) and a second lip-shaped part (8) on the outside of the second envelope (4), whereby the first envelope (3) is connected to the first lip-shaped part (7) and the third envelope (5) is connected to the second lip-shaped part (8).

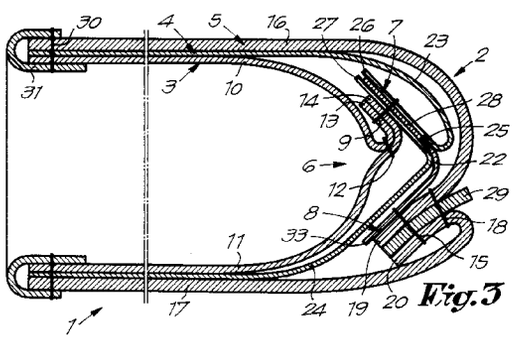


Fig.3

EP 0 611 529 A1

This invention relates to a glove and to a method for the manufacture of such glove.

More especially the invention relates to a watertight glove which consists of at least three envelopes, whereby the middle one of these three is watertight.

The glove according to the invention is particularly suitable in order to be worn by fire-fighters, but it is clear that it can also be employed by other users and in other fields of application.

Gloves which consist of two or three envelopes are already known. A disadvantage of such gloves consists in that when taking them off it regularly occurs that the interior envelopes are pulled out of the exterior envelope, after which it is rather difficult to fit the interior envelopes back into their place in the exterior envelope.

A solution in order to remedy this disadvantage consists in that the various envelopes, in particular near the fingertips of the gloves, are sewn up to each other, by stitching through the various envelopes. This technique however has the disadvantage that, when one of the envelopes is manufactured out of a watertight material, the watertightness is no longer ensured because of the presence of the stitched seam.

According to another technique the various envelopes can be glued to each other near the fingertips. This technique however shows the disadvantage that the adhesive connections can become unstuck with a lengthy contact with water or that through the presence of adhesive the fingertips of the glove are very hard through which the gloves are not very comfortable for the user.

The invention therefore also relates to a glove which does not show the above mentioned disadvantages.

For this purpose the invention concerns a glove, consisting of at least three envelopes, respectively a first envelope, a second envelope which is around the first envelope and a third envelope which is around the second envelope, characterised in that the second envelope is watertight; that the glove is provided with at least one attachment in order to connect the three envelopes together; and that, in order to form the above mentioned attachment, the second envelope is for this purpose provided with at least two lip-shaped parts, respectively a first lip-shaped part on the inside of the second envelope and a second lip-shaped part on the outside of the second envelope, whereby the first envelope is connected to the first lip-shaped part and the third envelope is connected to the second lip-shaped part.

Because of the fact that the first envelope and the third envelope are attached to the lip-shaped parts, these can be sewn up hereto without a stitched seam coming into being through the watertight second envelope.

The invention also relates to a method for the manufacture of the above mentioned glove, characterised in that it consists in the separate assembly of three envelopes, of which the first envelope is intended to fit into the second envelope and the second envelope is intended to fit into the third envelope; the mounting of two lip-shaped parts on the second envelope, of which a first lip-shaped part is on the side which is intended to form the inside and the second lip-shaped part is on the side which is intended to form the outside; the connecting together of the first envelope and the second envelope, this while the second envelope is turned inside out, whereby the connection is realised to the first lip-shaped part; the reversal of the second envelope, so that this comes around the first envelope; the connecting together of the second envelope and the third envelope, this while the third envelope is turned inside out, whereby the connection is realised to the second lip-shaped part; and the reversal of the third envelope, such that the first and second envelopes are situated in the third envelope.

In order to show better the characteristics according to the present invention, some preferred embodiments are described hereafter, as examples without any restrictive character, with reference to the attached drawings, in which:

Figure 1 shows a glove according to the invention;

Figure 2 shows a view according to arrow F2 in figure 1;

Figure 3 shows on a larger scale a cross-section according to line III-III in figure 1;

Figure 4 shows the watertight envelope out of the glove from figures 1 to 3 laid in a flat position;

Figures 5 and 6 show cross-sections according to lines V-V and VI-VI in figure 4;

Figures 7, 8 and 9 show various steps during the manufacture of the glove from figures 1 and 2;

Figure 10 shows a variant of the part that is illustrated in figure 6;

Figure 11 shows a view according to arrow F11 in figure 10:

Figure 12 shows another variant of the part that is illustrated in figure 6;

Figure 13 shows another glove according to the invention.

In figures 1 and 2 a glove 1 according to the invention is shown which is provided with fingers 2 and of which the assembly is described below on the basis of figures 3 to 9. It is however clear that, as will still further follow from the description, the invention can also relate to gloves without fingers, more especially so-called mittens.

As shown in figure 3 the invention relates to a glove 1 which consists of at least three envelopes, respectively a first envelope 3, a second envelope 4 which is around the first envelope 3 and a third envelope 5 which is around the second envelope 4. The particularity of the invention consists in that the glove

1 according to the invention shows the combination of characteristics that the second envelope 4 is watertight; that the glove 1 is provided with at least one attachment 6 in order to connect the three envelopes 3-5 together; and that, in order to form the above mentioned attachment 6, the second envelope 4 is for this purpose provided with at least two lip-shaped parts, respectively a first lip-shaped part 7 on the inside of the second envelope 4 and a second lip-shaped part 8 on the outside of the second envelope 4, whereby the first envelope 3 is connected to the first lip-shaped part 7 and the third envelope 5 is connected to the second lip-shaped part 8.

The suture between the first envelope 3 and the first lip-shaped part 7 is formed by a connection 9, for example a stitched seam. The first envelope 3 will, as usual with every from of glove, preferably consist of at least two parts 10 and 11 which are connected close to their edges by means of at least one seam 12, for example a stitched seam. In order that the connection 9 would not interfere with the comfort of the glove, it is preferred that it either corresponds with the seam 12 or is realised at the location of the free parts 13 and 14 of the edge of the first envelope 3, in other words the parts which are past the seam 12.

The suture between the third envelope 5 and the second lip-shaped part 8 is preferably formed by a connection 15, such as a stitched seam or the like. In the case that the third envelope 5 as shown in figure 3 consists of at least two parts 16 and 17 which are attached to each other near their edge by means of a seam 18, such as a stitched seam, it is preferred that the connection 15 is realised at the same location as the seam 18 or at the location of the free parts 19 and 20 of the edge of the third envelope 5, in other words the parts which are situated past the seam 18.

The lip-shaped parts 7 and 8 are preferably in such a place that they optimally ensure that the second envelope 4 and the third envelope 5 cannot come loose from the first envelope 3. The attachments 6, and consequently also the lip-shaped parts 7 and 8, are preferably therefore near the tip of the glove 1. In the case of a glove 1 with fingers 2 an attachment 6 is preferably realised on each fingertip 21. As shown in figure 4, which is an illustration of the second envelope 4 from figure 3, lip-shaped parts 7 and 8 are therefore provided on each fingertip 21.

The lip-shaped parts 7 and 8 lie, at least according to the direction according to which the interior envelopes 3 and 4 can be slipped out of the exterior envelope 5, in line, which is clearly visible in figure 4.

In the example shown from figure 3 the second lip-shaped part 8 is part of an element 22, preferably in the form of a strip, which is attached to the second envelope 4.

The second envelope 4 hereby preferably consists of at least two parts 23 and 24 of a watertight material which are attached to each other in watertight manner near their edge, preferably by means of a suture such as a thermally formed welded joint 25. Such welded joint 25 allows the element 8 to be welded between the parts 23 and 24 without the watertight properties of the second envelope 4 being lost.

In the embodiment which is shown in figures 3 and 4 the first lip-shaped part 7 is formed by three layers, namely by the free edge parts 26 and 27 of the parts 23 and 24 and a part 28 of the element 8 which in relation to the above mentioned welded joint 25 is opposite the second lip-shaped part 8. As shown in figure 4 the free edge parts 26 and 27 are preferably so moulded that they form lip-shaped projections at the places where connections 6 will have to be realised.

It is clear that the first lip-shaped part 7 in the embodiment from figure 3 could also only consist of one or two layers formed out of the edge parts 26 and 27 and/or the above mentioned part 28, whereby the parts then not present cease to exist with the welded joint 25.

It is clear that the glove 1 can be manufactured out of different materials. The materials described below are however preferably utilised.

The first envelope 3 is realised out of a material which can act as lining, preferably a textile fabric.

The second envelope 4, which as mentioned above should be watertight, preferably consists of a support, such as a fabric, which is provided with a plastic coating, for example by impregnation. Polyurethane permeable to vapour can be employed as plastic for this purpose. The fact that a woven support is employed, offers the advantage that the watertight layer is particularly strong, which is especially important with the production of the glove 1 because with repeated reversal, as well as with the shaping of the glove, various forces are exerted on it. For the same reasons, in other words in order to prevent damages to the second envelope 4 as a result of tensions, it is preferred that the second envelope 4 is oversized in relation to the two other envelopes 3 and 5.

The above mentioned element 22 preferably consists of a strip of plastic, for example also polyurethane, all of which such that this element 22 can without problem and without any sealing problems be welded between the parts 23 and 24 by means of a thermal weld.

The third envelope 5 preferably consists of leather and still more especially a leather made watertight by a treatment, such as impregnation. Between the seam 18 of the third envelope 5 a decorative and/or strengthening strip 29 can be sewn. By making use of treated leather the chance that water reaches into the third envelope 5 is kept very small. Possible vapour can only reach the third envelope 5 via the seam 18, after which the completely watertight second envelope 4 then ensures that the lining which is formed by the first envelope 3, remains dry.

As shown in figures 1, 2 and 3 the three envelopes 3-5 can be connected to each other near the wrist by means of a stitched seam 30, whereby a beautiful finish can be achieved by means of a hemming band 31.

For the manufacture of the glove from figures 1 to 3 work is preferably undertaken according to the method which is described in the introduction. This method is now explained in detail as follows on the basis of figures 4 to 9.

The three envelopes 3-5 are assembled separately.

Figures 4, 5 and 6 show how the watertight second envelope 4 is built up. This envelope 4 preferably consists of only two parts 23 and 24 welded together. These parts 23 and 24 are cut from a layer of the above mentioned material and are completely identical. They show the form of a large hand with moulded edge parts 26 and 27 at the fingers 2. The two parts 23 and 24 are then precisely laid on each other, with insertion of the above mentioned elements 22. In order to attach the parts 23 and 24 and the element 22 mutually to each other and simultaneously to provide a watertight suture, the whole is then provided along its edge with a thermally formed welded joint 25. This welded joint 25 is preferably continuous along the complete periphery of the parts 23 and 24, with exception of the side 32 along which the hand has to be pushed into the glove 1.

After the welded joint 25 is formed, the second envelope 4 is realised and is in relation to its ultimate capacity in an inside out position.

In a following step, as shown in figure 7 the first envelope 3, which as mentioned above consists of at least two parts 10 and 11 sewn together, is laid on the second envelope 4 and attached hereto by means of a connection 9, which as already described above can consist of a stitched seam or the like.

By subsequently reversing the second envelope 4, as indicated in figure 7 by arrow W, a position is obtained as shown in figure 8, whereby the second lip-shaped part 8 extends freely outwards.

Subsequently as illustrated in figure 9 the third envelope 5 is attached to the second envelope 4, whereby the connection 15 is realised at the location of the second lip-shaped part 8, by stitching together.

After this it is sufficient to reverse the third envelope 5, which is originally attached to the second lip-shaped part 8 in the inside out position, in order to obtain the position of figure 3, after which the hemming band 31 still has to be attached to the glove 1.

With the above mentioned method occurring reversal operations can be realised manually, semi-automatically or automatically. This will not be gone into in greater depth as this belongs to the state-of-the-art glove production. Furthermore as is generally known with the production of gloves, the glove can be treated on a shaping machine, whereby for example the fingers 2 are one for one slipped over a tension device in order to open them, in order to get from the flat form from figures 6 to 9 to an opened form as is illustrated in figure 3.

It is clear that the device of the invention can also be realised in other ways. Thus for example in figures 10 and 11 a variant is shown according to which the lip-shaped parts 7 and 8 are part of the materials out of which the above mentioned parts 23 and 24 are formed, such that no separate element 22 is still necessary. In this embodiment the second lip-shaped part 8 is formed because of the fact that the above mentioned part 23 is provided with a relatively long lip-shaped protruding part which is folded double, such that the free extremity 33 is in the thus shown position on the inside of the envelope 4. The whole is then attached together in folded double position and completely sealed by means of the welded joint 25 already discussed above.

The form of the lip-shaped produced part is visible in figure 11, whereby the dashed-dotted line represents the lip-shaped part in opened out position.

In figure 12 another variant is shown whereby the above mentioned second lip-shaped part 8 is formed out of folded over parts of both the part 23 and the part 24.

There is nothing to prevent that, according to the invention, the edge parts 26 and 27 and/or the part 28 of the first lip-shaped part 7 are attached to each other over a part of their surface or over their complete surface, for example welded by selecting the welded joint 25 wider.

It is clear that, as mentioned above, the invention is also applicable for gloves without fingers, more especially mittens. In the case of a mitten 34 preferably two attachments 6 as mentioned above are realised, more especially, as illustrated in figure 13, a first attachment at the tip of the central part 35 and a second attachment at the tip of the thumb 36, more especially again at the places which are indicated in this figure by P1 and P2.

The present invention is in no way restricted to the embodiments described above and shown in the drawings, but such glove and method for the manufacture thereof can be developed according to different variants without departing from the scope of the invention as defined in the attached claims.

Claims

1. Glove, consisting of at least three envelopes, respectively a first envelope (3), a second envelope (4) which is around the first envelope (3) and a third envelope (5) which is around the second envelope (4), characterised in that the second envelope (4) is watertight; that the glove (1) is provided with at least one attachment (6) in order to

connect the three envelopes (3, 4, 5) together; and that, in order to form the above mentioned attachment (6), the second envelope (4) is for this purpose provided with at least two lip-shaped parts, respectively a first lip-shaped part (7) on the inside of the second envelope (4) and a second lip-shaped part (8) on the outside of the second envelope (4), whereby the first envelope (3) is connected to the first lip-shaped part (7) and the third envelope (5) is connected to the second lip-shaped part (8).

2. Glove according to claim 1, characterised in that the connection (9) between the first envelope (3) and the first lip-shaped part (7) consists of a stitched seam.

3. Glove according to claim 1 or 2, characterised in that the connection (15) between the third envelope (5) and the second lip-shaped part (8) consists of a stitched seam.

4. Glove according to one of the preceding claims, characterised in that the first lip-shaped part (7) and the second lip-shaped part (8) are situated in line according to the direction that the various envelopes (3-5) can be pulled out of each other.

5. Glove according to one of the preceding claims, characterised in that at least the second lip-shaped part (8) consists of an element (22) which is attached between the seams of two parts (23, 24) of the second envelope (4).

6. Glove according to claim 5, characterised in that the element (22) runs through to the inside of the second envelope (4) and in so doing at least partly provides the formation of the above mentioned first lip-shaped part (7).

7. Glove according to one of the preceding claims, characterised in that the first lip-shaped part (7) is at least partly formed out of at least one free edge part (13, 14) which arises because of the fact that the second envelope (4) consists of at least two parts (23, 24) which by means of a welded joint (25) are attached to each other at a distance from the edge.

8. Glove according to claim 5 or 6, characterised in that the above mentioned element (22) consists of a strip of plastic.

9. Glove according to one of the claims 1 to 4, characterised in that the lip-shaped parts (7, 8) are formed out of the material of the second envelope (4) itself, whereby the second lip-shaped part (8) is formed because of the fact that at least one of the composing parts (23, 24) of the second envelope (4) is locally folded double.

10. Glove according to one of the preceding claims, characterised in that the second envelope (4) is formed out of at least two parts (23, 24) which are attached to each other along their periphery by means of a thermally formed welded joint (25).

11. Glove according to claim 10, characterised in that the welded joint (25) provides the suture and seal of the above mentioned lip-shaped parts (7, 8).

12. Glove according to one of the preceding claims, characterised in that it is provided with several of the above mentioned attachments (6), whereby these attachments (6) are at the tip of the glove (1).

13. Glove according to claim 12, characterised in that this is a glove (1) with fingers (2) and that at each fingertip (21) an attachment (6) is present as mentioned above.

14. Glove according to one of the preceding claims, characterised in that the second envelope (4) consists of a support which is provided with a plastic coating.

15. Glove according to claim 14, characterised in that the plastic coating consists of polyurethane permeable to vapour.

16. Glove according to one of the preceding claims, characterised in that the second envelope (4) is oversized in relation to the ultimate glove (1).

17. Glove according to one of the preceding claims, characterised in that the first envelope (3) is made out of a textile fabric.

18. Glove according to one of the preceding claims, characterised in that the third envelope (5) consists of leather.

19. Method for the manufacture of a glove as described in claim 1, characterised in that it consists in the separate assembly of three envelopes (3, 4, 5), of which the first envelope (3) is intended to fit into the second envelope (4) and the second envelope (4) is intended to fit into the third envelope (5); the mounting of two lip-shaped parts (7, 8) on the second envelope (4), of which a first lip-shaped part (7) is on the side which is intended to form the inside and the second lip-shaped part (8) is on the side which is intended to form the outside; the connecting together of the first envelope (3) and the second envelope (4) this while

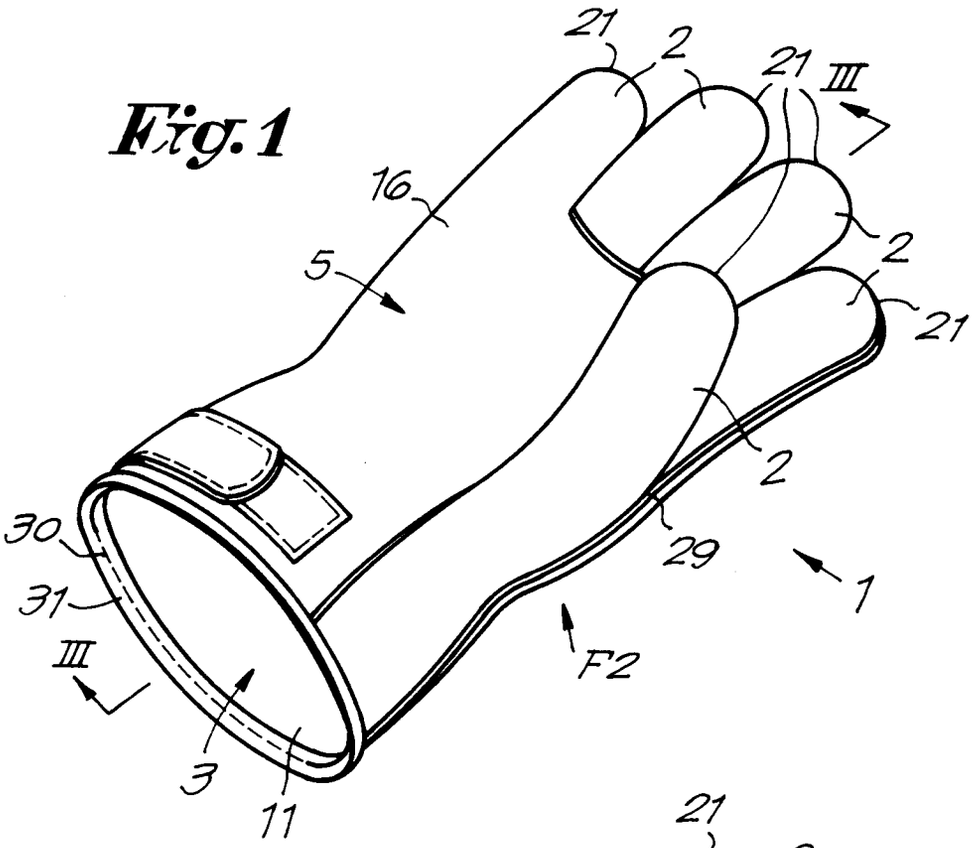
the second envelope (4) is turned inside out, whereby the connection (9) is realised to the first lip-shaped part (7); the reversal of the second envelope (4), so that this comes around the first envelope (3); the connecting together of the second envelope (4) and the third envelope (5), this while the third envelope (5) is turned inside out, whereby the connection (15) is realised to the second lip-shaped part (8); and the reversal of the third envelope (5), such that the first and second envelopes (3, 4) are situated in the third envelope (5).

20. Method according to claim 19, characterised in that the second envelope (4) is assembled in inside out form and by the laying of two identically cut out, thermally weldable layers of material on top of each other, followed by the thermal welding together of both layers.

21. Method according to claim 20, characterised in that at each place where an attachment (6) has to be realised, in order to provide two lip-shaped parts (7, 8), an element (22) in the form of a strip of plastic is laid between the above mentioned two layers of material and is attached together with the above mentioned welding treatment..

22. Method according to one of the claims 19, 20 or 21, characterised in that the connections (9, 15) between the first envelope (3) and the first lip-shaped part (7) and between the third envelope (5) and the second lip-shaped part (8) are formed by sewing together.

Fig.1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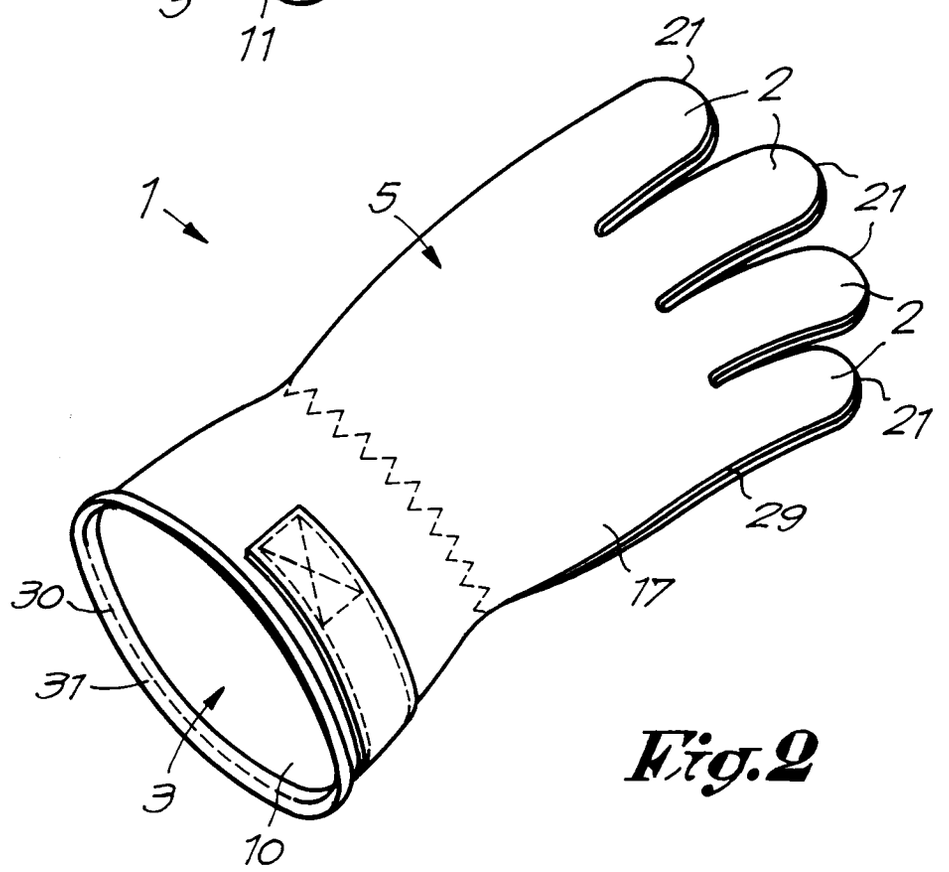
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Fig.2

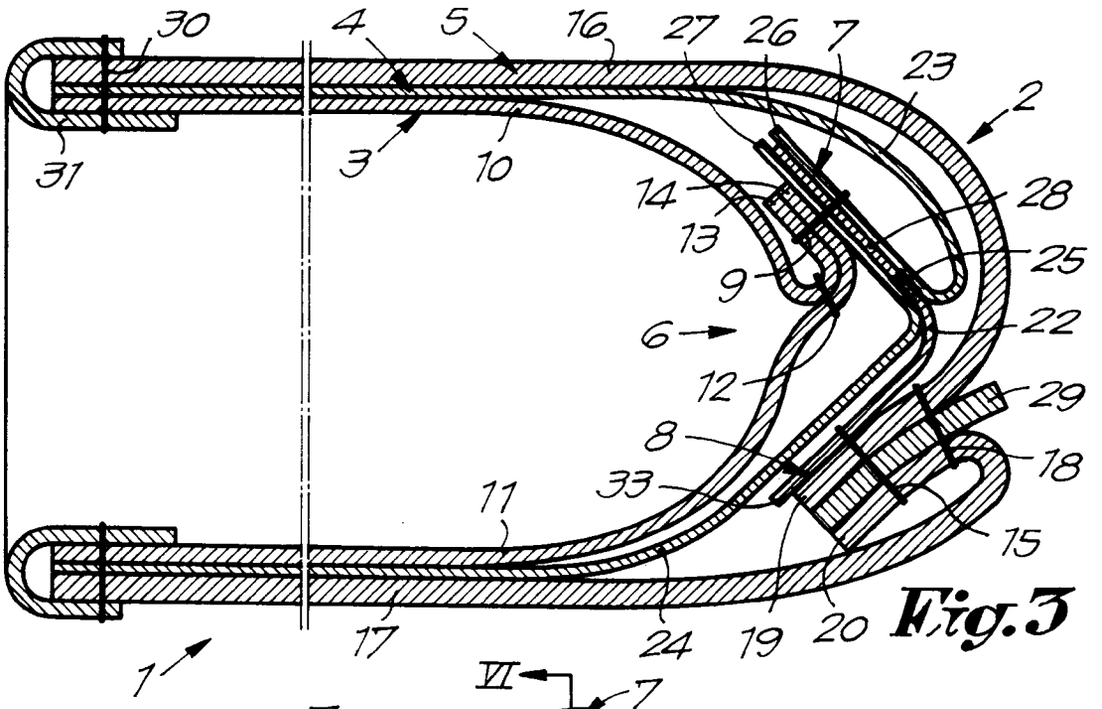
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Fig.3

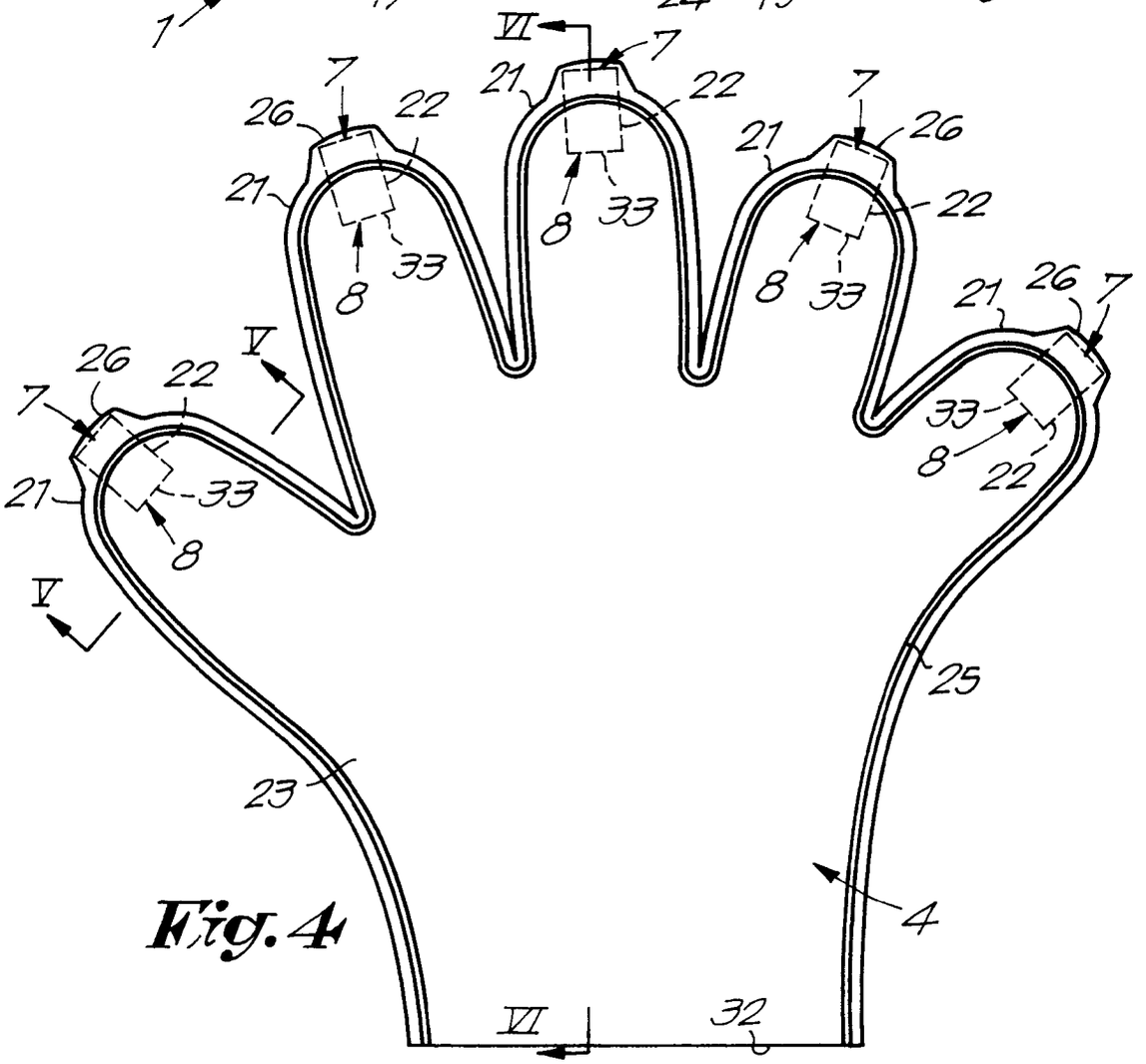
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Fig.4

Fig.5

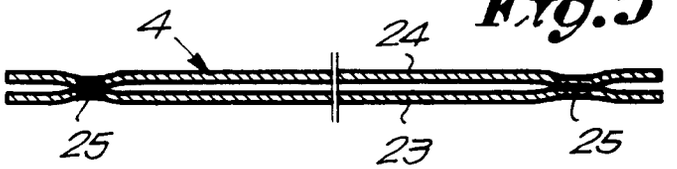


Fig.6

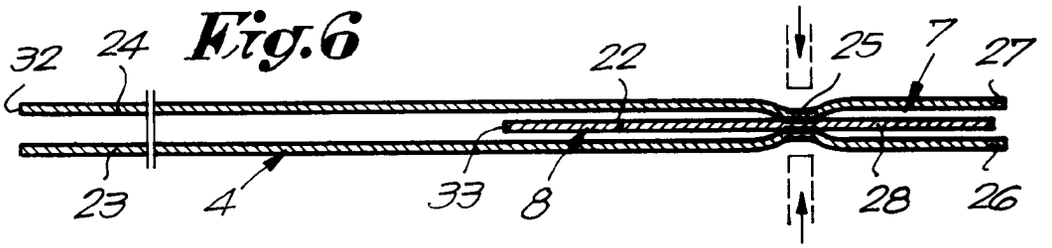


Fig.7

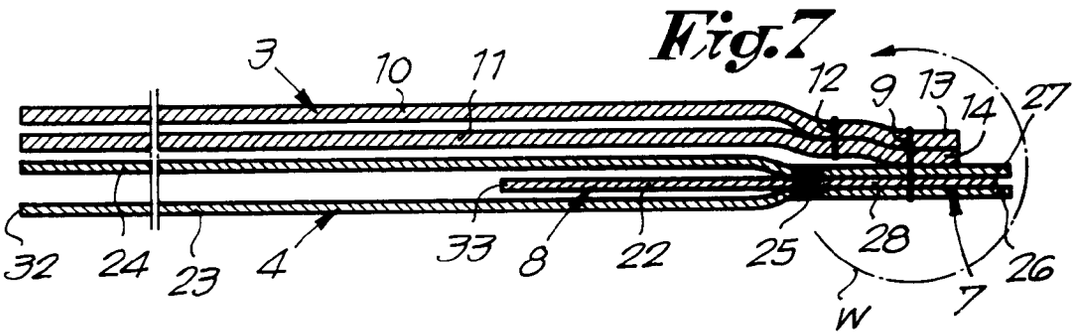


Fig.8

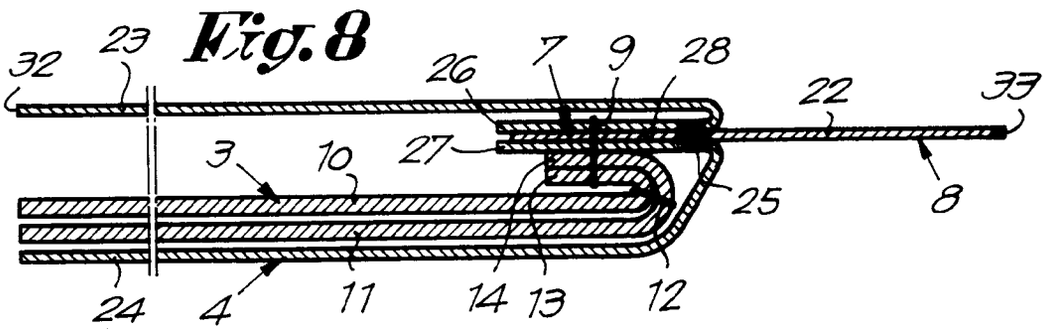


Fig.9

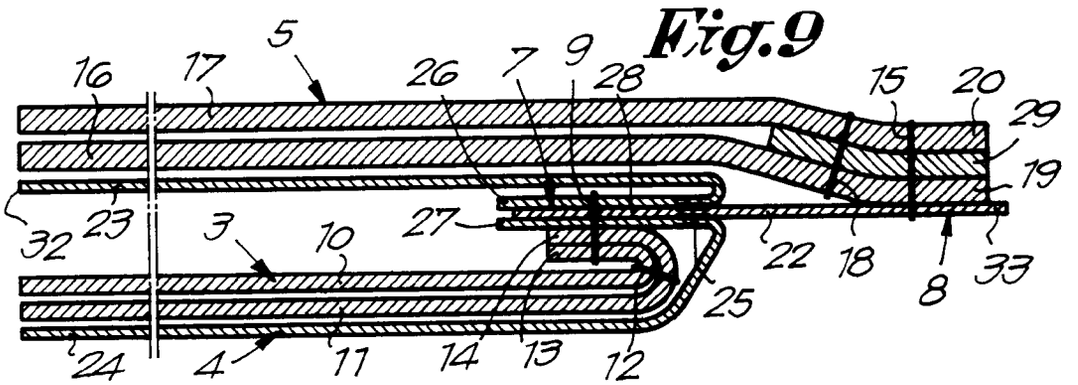


Fig.10

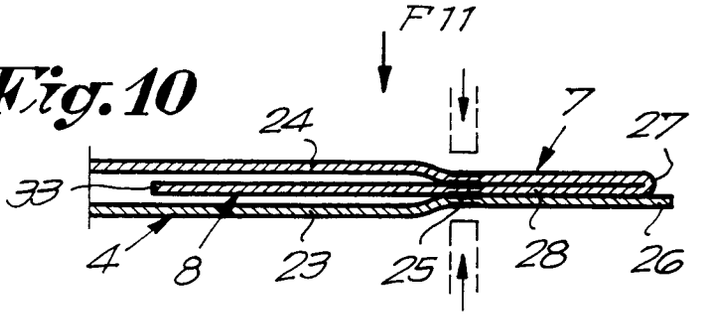
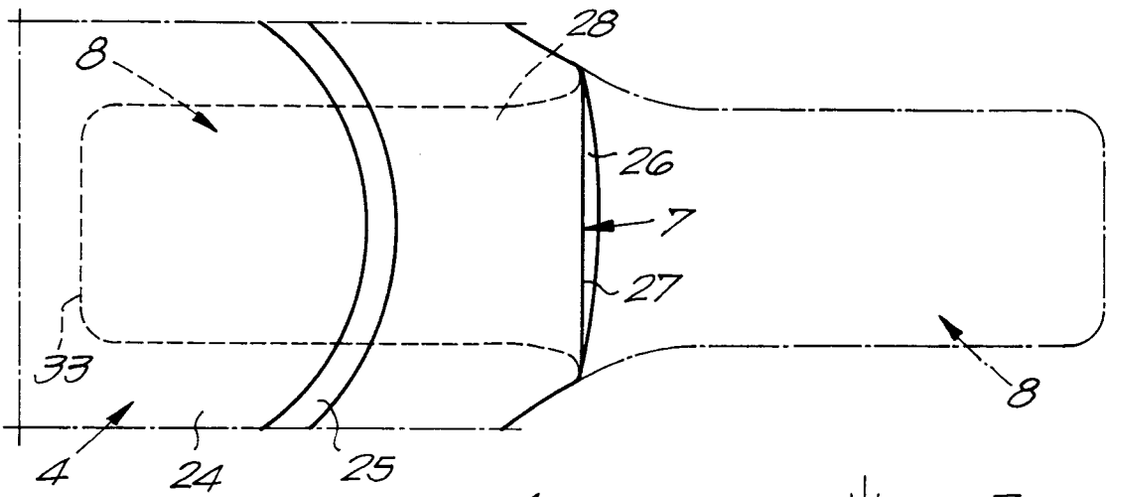


Fig.11



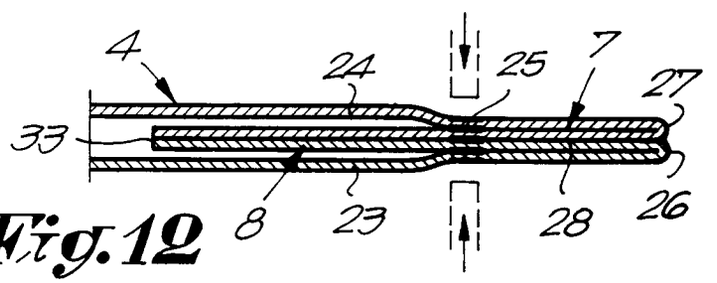


Fig.12

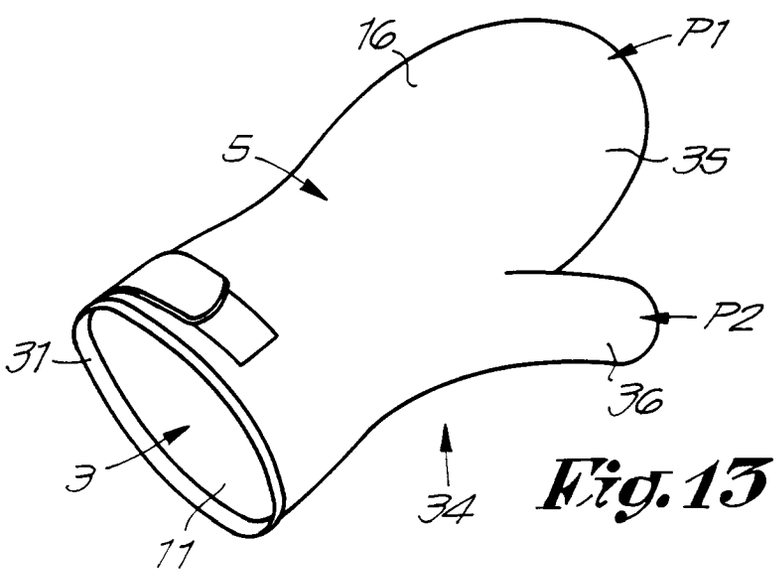


Fig.13

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 94 20 0248

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	US-A-4 918 756 (W.L. GRILLIOT & AL) * the whole document *	1,19	A41D13/10
P,X	WO-A-93 02578 (A. WIIK) * claims; figures *	1,19	
A	US-A-4 679 257 (A.W. TOWN) * abstract; figures *	1,19	
A	US-A-3 114 915 (H. GROSS) * column 1, line 41 - column 3, line 52; figure 3 *	1	
A	US-A-2 072 541 (J. BURNHAM) * the whole document *	1	
A	US-A-2 044 105 (L.J. SABIN) * the whole document *	1	
A	FR-A-1 238 169 (L. DE JONGHE) * the whole document *	1	
			TECHNICAL FIELDS SEARCHED (Int.Cl.5) A41D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	11 May 1994	Vanmol, M

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
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