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A request for correction of the description has been filed pursuant to Rule 88 EPC. A decision on the request will be taken during the proceedings before the Examining Division (Guidelines for Examination in the EPO, A-V, 3.).

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(54) **Arrangement in a garment for fastening and detaching at least one pocket**

(57) The invention relates to an arrangement in a garment (12, 13) for fastening and detaching at least one pocket (10, 10'). The arrangement includes an attachment member (14.2) and an attachment counter piece (14.1), which are formed of a zip fastener (14).

One half is attached to the garment (12, 13) and the other half to the upper edge of the pocket (10, 10'), in such a way that the pocket can be completely detached by opening the zip fastener (14). Here, the term "pocket" also refers to, for example, a knee protector or a suspension device for a mobile radio station.

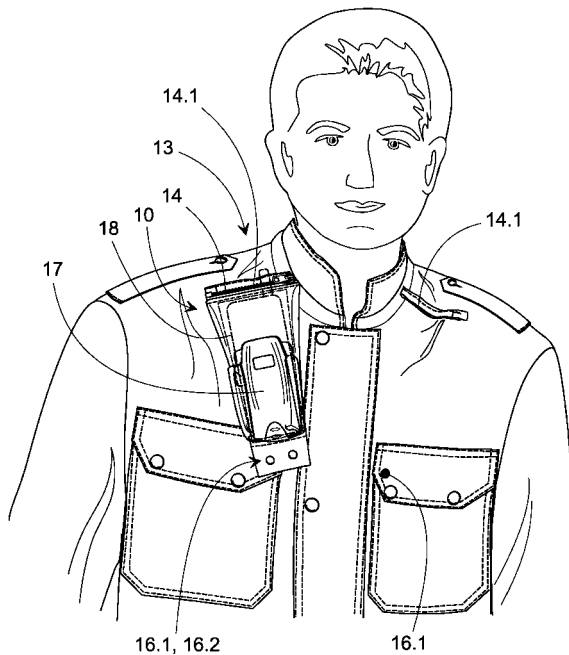


Fig. 9

Description

[0001] The present invention relates to an arrangement in a garment for fastening and detaching at least one pocket, in which the pocket comprises a storage space, knee protector, knee padding, or a suspension device, and in which the pocket includes an attachment member and an attachment counter piece in the garment. Here, the term "pocket" refers not only to a piece forming an actual storage space, but also to other detachable pieces, such as a suspension member, for example, for tools or a mobile radio station, or, for example, knee or elbow padding or protectors.

[0002] Pockets account for a significant part of the manufacturing costs of garments. In general, more than half of the manufacturing costs of a garment are due to making the pockets.

[0003] When garments are used, they usually wear only at specific places. Often, when garments are finally thrown away because, for example, they are worn through, their pockets are still completely intact.

[0004] Nowadays, billing for the care of garments is based on the weight of the garments involved. When large numbers of garments are handled, their pockets form a quite significant share of this weight.

[0005] Attempts have been made to solve these problems, among others, by means of several known pocket models, which are intended to be fastened to and detached from the wearer's garments. In known solutions, the attachment is arranged to take place using, for example, strips of Velcro or a safety pin. The US publications 3,840,901, 4,266,300, 5,054,127, and 6,233,747 B1 disclose comprehensively various kinds of pocket-attachment solutions according to the state of the art.

[0006] For example, the Velcro attachment of a separate pocket is disclosed in US patent publication 4,266,300 (Partridge). This refers to a general-purpose pocket, which can be placed on the wearer's garment almost independently of the location of the attachment. However, its carrying capacity is too small for carrying, for example, heavy objects. In addition, the Velcro attachment arranged directly on the same side of the garment as the pocket is unreliable, as the adhesion of the Velcro attachment become unreliable when the pocket is fastened and detached. In addition, if a force greater than the tearing strength of the Velcro attachment acts on the pocket, it will detach from the garment.

[0007] The aforementioned known carrying devices do not satisfy all groups of users. Particularly when used in work garments, the pocket solutions of the kind described above and their methods of attachment are especially unsatisfactory. Further, when used at work, it is difficult to take objects from a pocket that is permanently attached to a garment over the whole depth of the pocket. The openings of permanent pockets are also often quite tight, making it difficult to use them effectively. Often, the capacity of the volume of the pocket remains small, because changes in shape caused by the filling

of the pocket are limited by the inflexible garment forming the rear face of the pocket and by the wearer's body.

[0008] The present invention is intended to create a new type of arrangement for use in garments for fastening and detaching pockets. The characteristic features of the invention are stated in the accompanying Claims. In the following, reference will be made to pockets in general, which is essentially used to refer also to other corresponding types of suspended elements, which are not necessarily closed at their lower edge. These include, for example, tube-like storage spaces arranged in garments for pens or various tools, such as loop attachments for tape measures or hammers. The term also includes various protectors.

[0009] When using the arrangement according to the invention, the fastening of a pocket to a garment is particularly secure and easy. The attachment of the pocket to the garment is arranged with the aid of a zip fastener, in which case one of the toothed strips of the zip fastener member is attached to the rear face of the pocket, preferably to an extension of it. The opposite toothed strip to this is attached similarly to the garment, for example, outside a fold in it, such as the waistband fold, or in connection with pockets permanently attached to the garment. Further, various seams in the garment, to which the toothed strip can be advantageously attached, can be used as attachment points for the opposite toothed strip.

[0010] In one preferred embodiment of the invention, an additional attachment is used at the lower edge of the pocket. A Velcro attachment or a press-stud attachment can be used as the additional attachment.

[0011] According to a second preferred embodiment, the pocket's attachment zip fastener is of the plastic spiral type, which, as is known, will carry a large load.

[0012] According to a third embodiment, the zip fastener is arranged beneath a flap.

[0013] Using the arrangement according to the invention achieves several significant advantages over the state of the art. Cost savings accrue through the significant reduction in the manufacturing costs of garments, as the same pockets can be used in several garments. At the same time, the pockets can be also made from better and more durable material. Further, the costs of garment care are reduced, as the pockets can be removed and thus do not increase the weight of garments, for example, when they are sent for laundering.

[0014] When using the arrangement according to the invention, the apparel needed by a wearer can comprise, for example, only one piece of full equipment, which includes both the garments of the apparel and detachable pockets manufactured for different uses, as well as sets of basic apparel, which are otherwise similar, but are without the said pockets. Thus, when one set of apparel requires care, the wearer can move the pockets to a similar basic garment.

[0015] An additional benefit to the above is that pockets appropriate to the tasks of the wearer can be added

to the same basic set of apparel.

[0016] Other preferred embodiments and advantages of the invention will become apparent in connection with the later examples of embodiments. In the following, the invention is described with reference to the accompanying drawings, in which

- Figure 1 shows the arrangement according to the invention attached to trousers being worn by the wearer,
 Figure 2 shows the arrangement according to the invention in a vest,
 Figure 3 shows a rear view of the vest shown in Figure 2,
 Figure 4 shows the knee portion of the trousers shown in Figure 1, without the knee protector attached to it,
 Figure 5 shows the detachable knee portion,
 Figure 6 shows the knee protector of Figure 5 attached to the trousers,
 Figure 7 shows a "pocket", i.e. suspension component, used to suspend a mobile radio station,
 Figure 8 shows a rear view of the suspension component of Figure 7,
 Figure 9 shows the suspension component of Figure 7 attached to a jacket,
 Figure 10 shows an epaulet attachment component used to attach the suspension component of Figure 7,
 Figures 11 - 13 show the stages of attaching the epaulet,
 Figure 12 shows the attachment counter pieces required in the jacket for attaching the epaulet.

[0017] Referring to Figures 1 and 2, it should be stated that the detachable pocket arrangement can be formed in a nearly arbitrary garment, of which the examples in this case are trousers 12 and vests 13. In the figures, the detachable pockets are marked with the reference number 10 and the corresponding knee protector with the reference number 10'.

[0018] The pocket is normally formed of a front face and a rear face, with the front face being connected to the rear face, for example, at its side edges and lower edge. The front and rear faces joined together then form a bag-like storage space, open at its upper edge, for carrying objects (not shown) with the garment 12, 13. The pocket can also be part of a series of pockets, in which case they are arranged for several different purposes.

[0019] In connection with the arrangement according to the invention, the pocket can also be understood as being, not the storage spaces described above, closed at their side and lower edges, but various suspension elements, in which various tools, for example can be suspended. Generally it is possible to create series of

pockets for different purposes, with each pocket being equipped with the same fastening arrangement. For example, in the case of tape measures and hammers, the front face can be formed so that it is an upwards and downwards opening loop attached to the rear face, through which the hammer can be slipped shaft first, or in which a tape measure with an attachment clip can be placed. Further, the front face can be arranged in connection with the rear face in such a way that it is suitable for carrying pens (not shown).

[0020] Figure 1 shows a pair of trousers 12, with several pockets 10 arranged in them, each suspended with the aid of a horizontal zip fastener 14. At the knees, the trousers 12 have special knee protectors 10', the attachment of which is described later in greater detail. It is particularly advantageous for a worker to be able to put on the knee protectors or padding only when needed.

[0021] Figures 2 and 3 show vests 13 with several pocket arrangements according to the invention. In front, there are two pockets 10 arranged to be suspended from their upper parts beneath the pockets permanently attached to the vest. In addition, there is another detachable pocket 10 at the back.

[0022] It should be noted, that the garments 12, 13 shown in these Figures 1 - 3 are only by way of examples, so that the pockets 10, 10' according to the invention are in no way restricted to the garments 12, 13, or even to only apparel in general.

[0023] Figures 4 - 6 show in greater detail the attachment arrangement of the knee protector 10' shown in Figure 1. In Figure 4, the knee protector is not being used, so that the half 14.1 of the zip fastener used to attach it remains unseen under the flap 15 arranged in the leg of the trousers 10. The press-stud counter piece 16.1, which is visible below, does not hinder other work.

[0024] Figure 5 shows the knee protector 10' separately. In this case, it actually comprises a special pocket, with a suitable padding sheet placed inside it. A half 14.2 of a zip fastener is stitched to the upper part of the knee protector 10'. The zip fastener is operated by a zipper slide 14.3, which remains on one half or the other, in this case on the half 14.2. The start of the zip also requires stops (not shown), into which the end of the half is pushed. As such, the construction of the zip fastener is conventional. The lower part of the knee protector 10' has male press-stud members 16, which are arranged to fasten to the press-stud counter pieces 16.1 (Figure 4) in the trousers.

[0025] Figure 6 shows the attachment of the knee protector 10' in detail. Here, the flap 15 covering the zip fastener 14 is shown slightly turned, allowing the closed zip fastener 14 to be seen. The press-stud fasteners (16, 16.1) of the lower part are closed, so that the knee protector 10' is firmly in place.

[0026] In place of stud fasteners, it is possible to use hook-and-loop tape, which is as such known, one example of which is Velcro™.

[0027] The attachment zip fasteners of the pocket 10

can also be covered with a normal pocket flap 12.3, as shown in Figure 1.

[0028] The zip fasteners used can be, for example, either cast-tooth zip fasteners (plastic or metal), or plastic-coil tooth zip fasteners, such as 05 CF CHAIN P12 DYED HANK200, manufacturer YKK, Japan. The essential property of the zip fastener is its lateral strength, which in some plastic-coil types, for instance, can be as much as 40 kg / 2,5 cm.

[0029] By using one or several zip fasteners, it is also possible to attach pockets to a garment in series, for example, so that a pocket attached to the garment, using the zip-fastener attachment described above, can have arranged in it, for example, a toothed strip at its lower edge, to which a second zip-fastener attached pocket, in which there is a counter toothed strip for this purpose, can be connected.

[0030] One application of the invention is the suspension of a mobile radio station, utilizing a "pocket", in this case a holder arrangement 10, according to Figures 7 and 8. This is equipped with a half 14.2 of a zip fastener and lower press-stud fasteners 16.2, 16.2, for attaching the holder arrangement 10 to the upper half 14.1 of zip fastener and a press-stud counter piece 16.1, Figure 9, in a jacket or similar. The outline of the mobile radio station placed in the holder 17 is shown by broken lines in the figure. The jacket or other garment requires only small additional pieces to receive the mobile station holder arrangement 10. These are the half 14.1 of the zip fastener and the press-stud counter pieces 16.1 (Velcro can also be used).

[0031] The holder arrangement 10 includes a support component, provided with a stiffener plate 10.1 (e.g. polycarbonate), which support component is manufactured from waterproof fabric. The actual mobile station holder 17 is attached to this with a screw 17.1 and Velcro 17.2. The plate 10.1 does not extend fully to the bottom, the bottom part 18 being instead flexible, to facilitate the attachment of the press-stud fasteners. The bottom part 18 has two press-stud fasteners 16.2, allowing the holder arrangement 10 to be put on either the left-hand or the right-hand side. The zip fastener used is a large-size cast-tooth zip fastener, with halves that are easily slid into each other, without seeing them, when the jacket is being worn.

[0032] If the jacket does not have a zip-fastener counter piece, this can be made with the aid of a detachable zip-fastener counter piece 20, as shown in Figures 10 - 13. This comprises a counter-piece component 22, an arm component 21, a connector 24, and a band 23. The counter-piece component 22 has the upper half 14.1 of the zip fastener and, at one end, the connector linking the arm component 21 and, at the other end, the band 23. These basic components are made of waterproof fabric and have reinforcements, preferably pieces of artificial leather, inside them.

[0033] Figure 14 shows the shoulder part of a jacket used by many officials, in which there is an epaulet

channel 30 and a loop 31. Insignia of rank (not shown) are placed on a special epaulet band 32, one half of which is slipped through the epaulet channel 30 and the other half is folded over the epaulet channel, after which the ends are attached to each other. The loop 31 is for other attachment purposes. In this case, the epaulet channel 30 and the loop 31 are used to attach a separate zip-fastener counter piece 20.

[0034] According to Figure 11, the attachment of the separate zip-fastener counter piece 20 starts with the arm component 21 being pushed through the epaulet channel 30 (as well as through the epaulet band 32). In the next stage (Figure 12), the band 23 is slipped through the loop 31 from beneath the visible end of the arm component 21 and pulled onto the arm component 21 near to the counter-piece component 22.

[0035] Finally, the press studs 25.2 and 26.2 of the band are pressed into the press-stud counter pieces 25.1 (at the end of the arm component) and 26.1 (in the counter-piece component), resulting in the arrangement of Figure 13. Figures 11 - 13, show the holder arrangement 10 as being included, but naturally it can be attached afterwards using the zip fastener 14.

[0036] In this case, two detachable parts, which can be attached to each other with a zip fastener, are disclosed, i.e. the holder arrangement 10 and the zip-fastener counter piece 20. From this invention, it is easy to derive a permanent combination of them without a zip fastener, which combination, is not, however, an object of the Claims of this application.

[0037] It must be understood that the above description and the related figures are only intended to illustrate the present invention. Thus, the invention is not restricted to only the embodiments disclosed above or those defined in the Claims, instead various variations and adaptations of the invention, which are possible within the scope of the inventive idea defined in the accompanying Claims, will be obvious to one versed in the art.

Claims

1. An arrangement in a garment (12, 13) for fastening and detaching at least one pocket (10, 10'), in which the pocket (10, 10') comprises a storage space, knee protector, knee padding, or a suspension device, and in which the pocket (10, 10') includes an attachment member and an attachment counter piece in the garment, **characterized in that** the attachment member (14.2) and the attachment counter piece (14.1) are formed of a zip fastener (14), one half of which is attached to the garment (12, 13) and the other half to the upper edge of the pocket (10, 10'), so that the pocket can be completely detached by opening the zip fastener (14).
2. An arrangement according to Claim 1, **characterized in that** other attachment means (16.2) are ar-

ranged in the lower edge of the pocket (10, 10') and a corresponding counter piece (16.1) is arranged in the garment.

3. An arrangement according to Claim 2, **characterized in that** the said other attachment means (16.2) and counter piece (16.1) are formed of press-stud attachment devices, one of which is a male press-stud member and the other is a female press-stud counter piece. 5
10
4. An arrangement according to any of Claims 1 - 3, **characterized in that** the zip fastener (14) is of the so-called plastic-coil type. 15
5. An arrangement according to any of Claims 1 - 4, **characterized in that** the garment (12, 13) half (14.1) of the zip fastener (14) is arranged under a flap (15). 20
6. An arrangement according to any of Claims 1 - 5, **characterized in that** the pocket (10) is a suspension device for a mobile radio station. 25
7. An arrangement according to Claim 6, **characterized in that** the pocket (10) includes a support component reinforced with a plate (10.1) and a flexible lower part (18), and in which the mobile station holder is attached to this plate (10.1). 30
8. An arrangement according to any of Claims 6 - 7 for use with apparel equipped with an epaulet channel (30), **characterized in that** the arrangement includes a detachably attached zip-fastener counter piece (20), which includes an arm component (21) that fits into the epaulet channel. 35
9. An arrangement according to Claim 8 for use with apparel equipped with an epaulet channel (30) and a shoulder loop (31), **characterized in that** the suspension of the zip-fastener counter piece (20) takes place not only with the arm component (21), but also with the aid of a band (23) that is slipped through the shoulder loop (31), which is secured by attachment means (25.1, 25.2, 26.1, 26.2) to form a suspension loop. 40
45
10. An arrangement according to Claim 9, **characterized in that** at least some of the attachment means (25.1, 25.2, 26.1, 26.2) are press studs. 50
11. An arrangement according to any of Claims 8 - 10, **characterized in that** at least one of the supporting components (21, 23) of the zip-fastener counter piece (20) is reinforced with the aid of a piece of artificial leather sewn inside it. 55

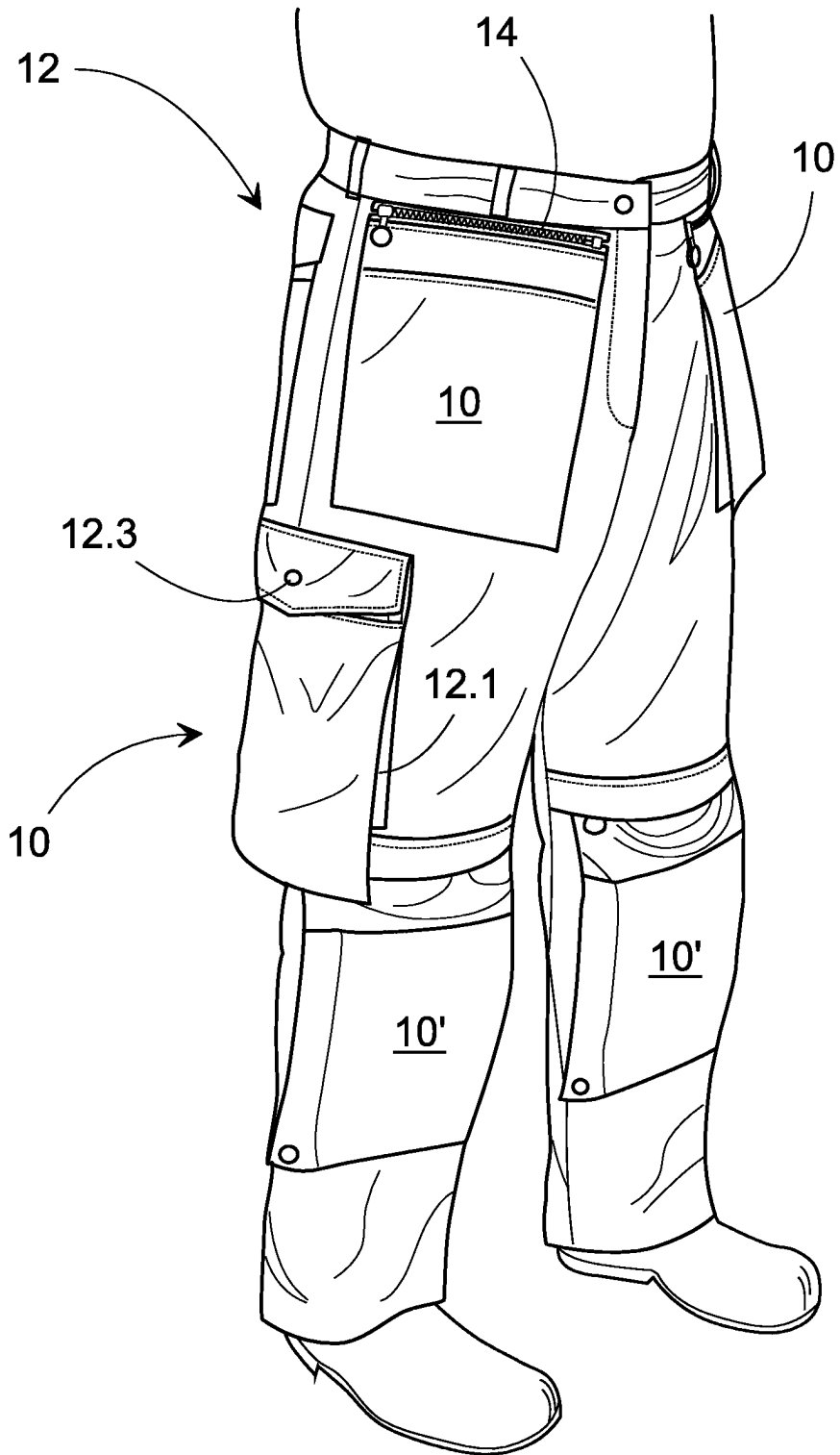


Fig. 1

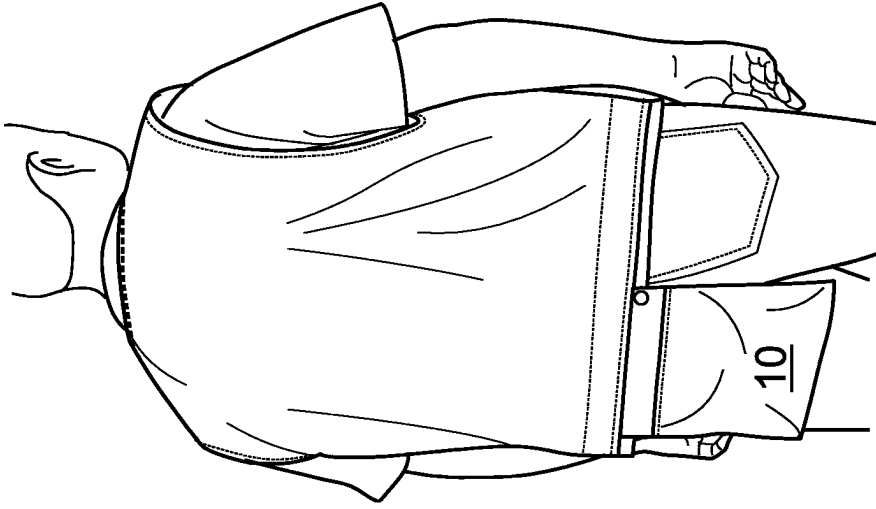


Fig. 3

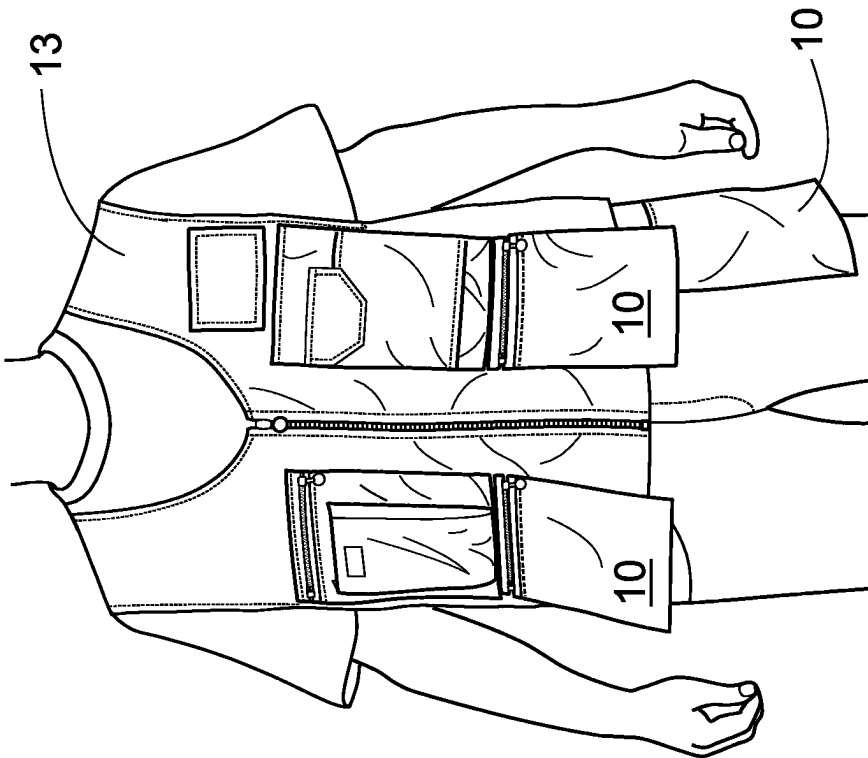


Fig. 2

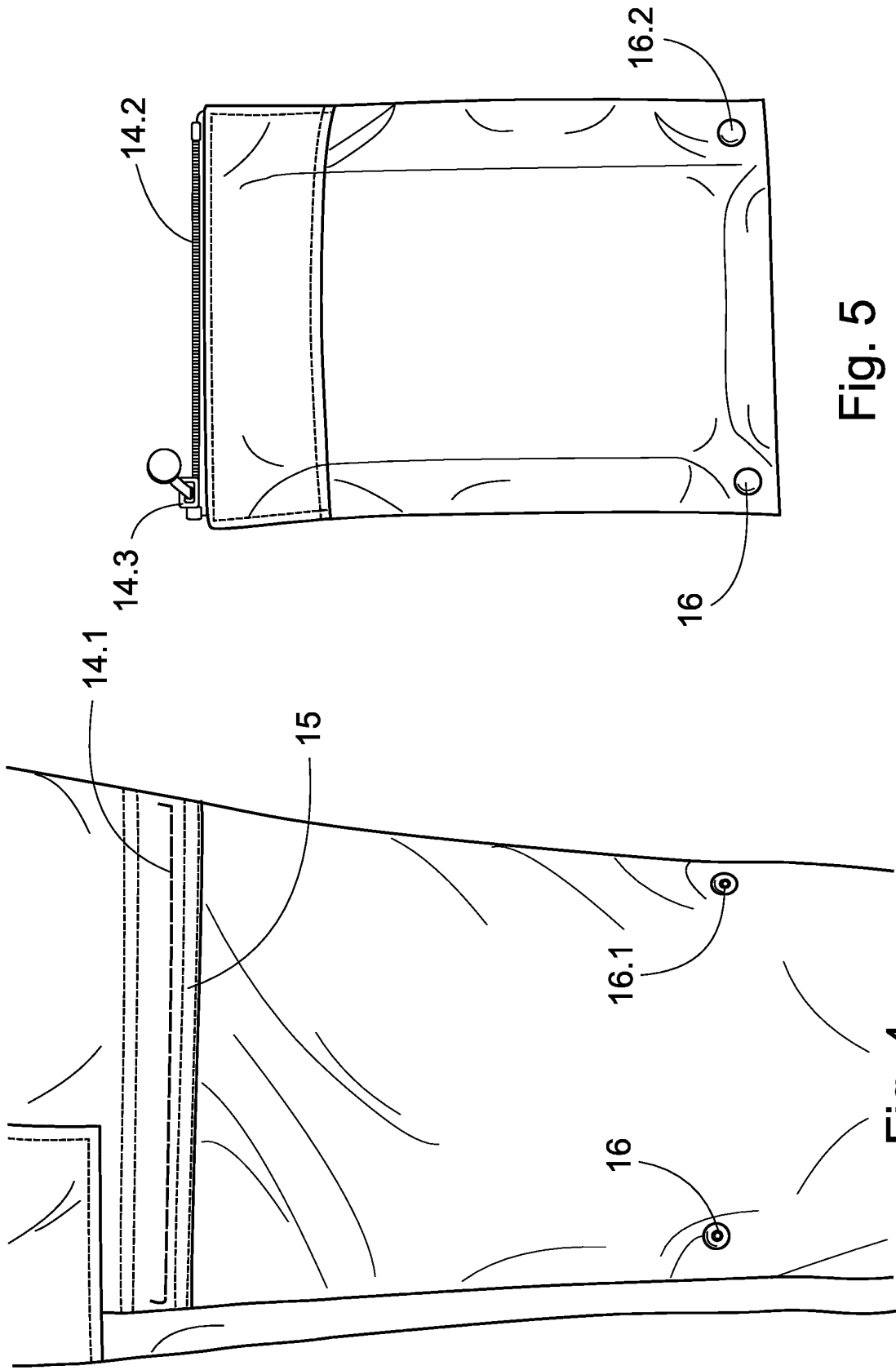


Fig. 5

Fig. 4

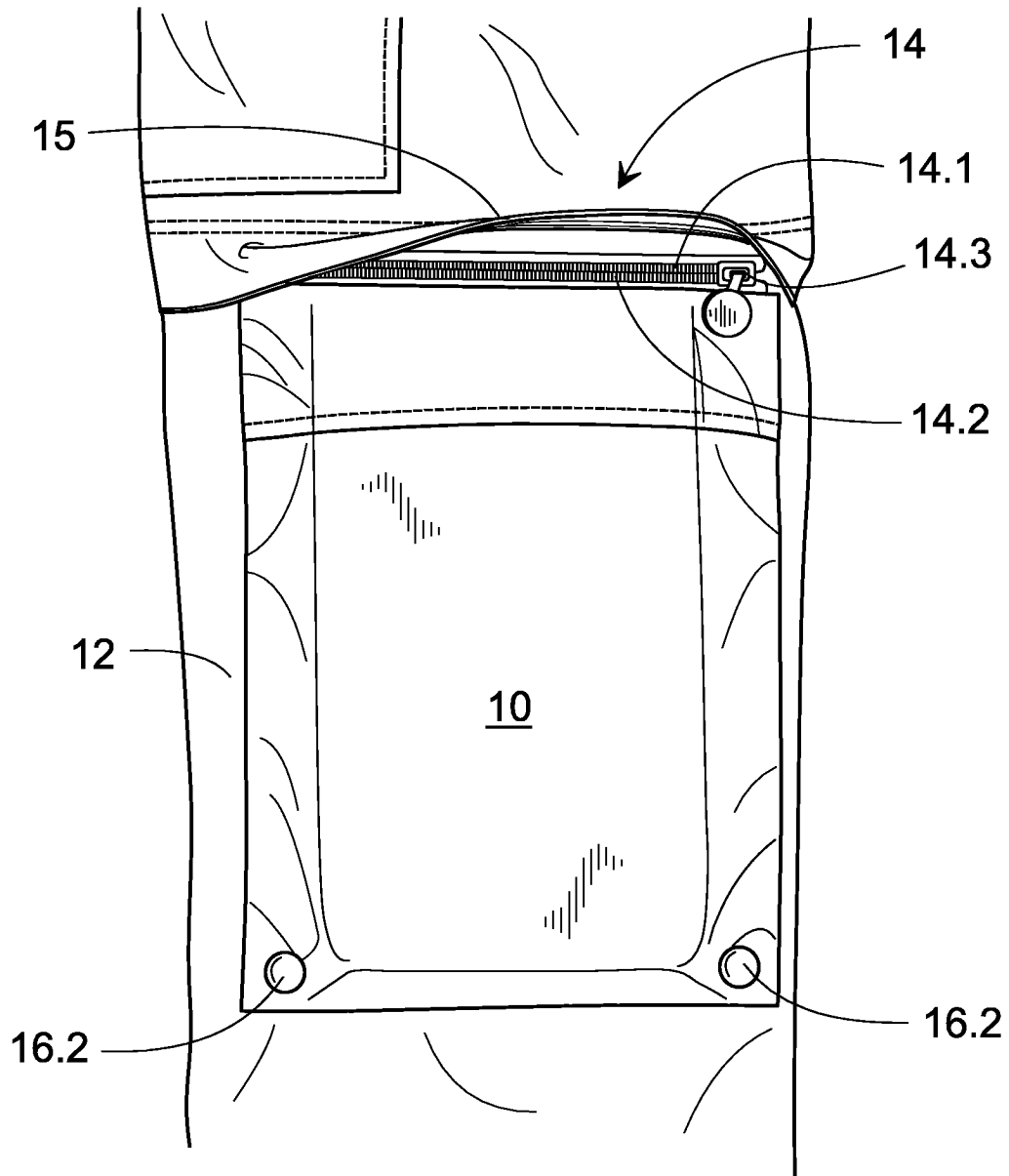
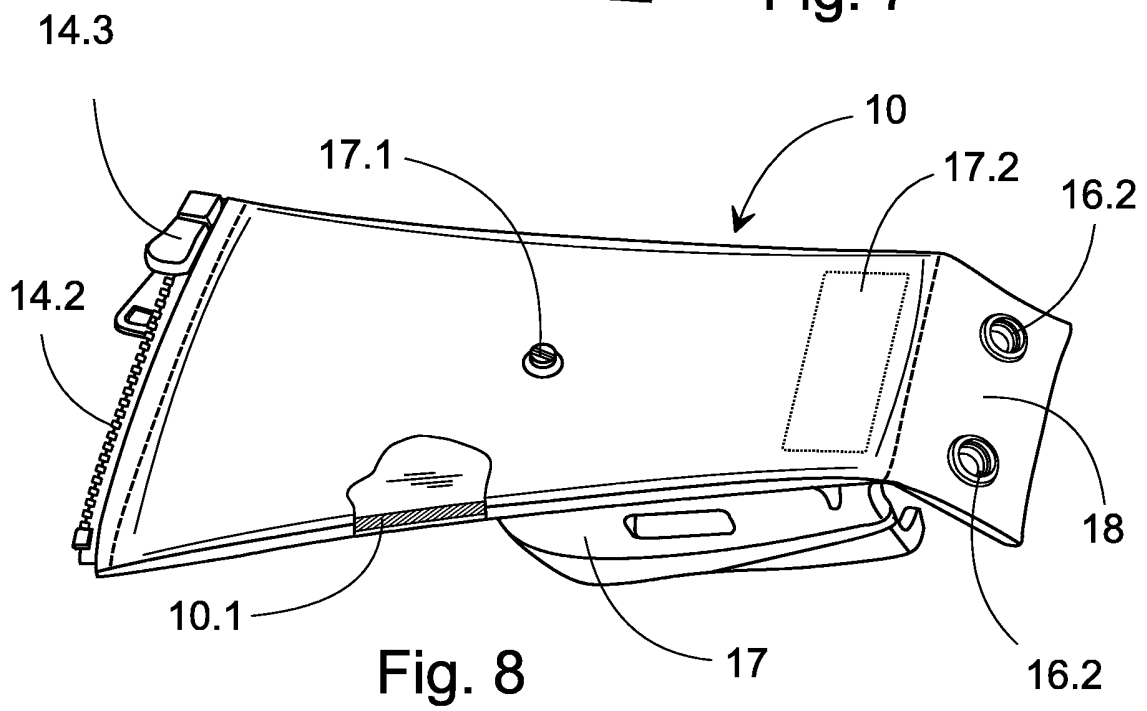
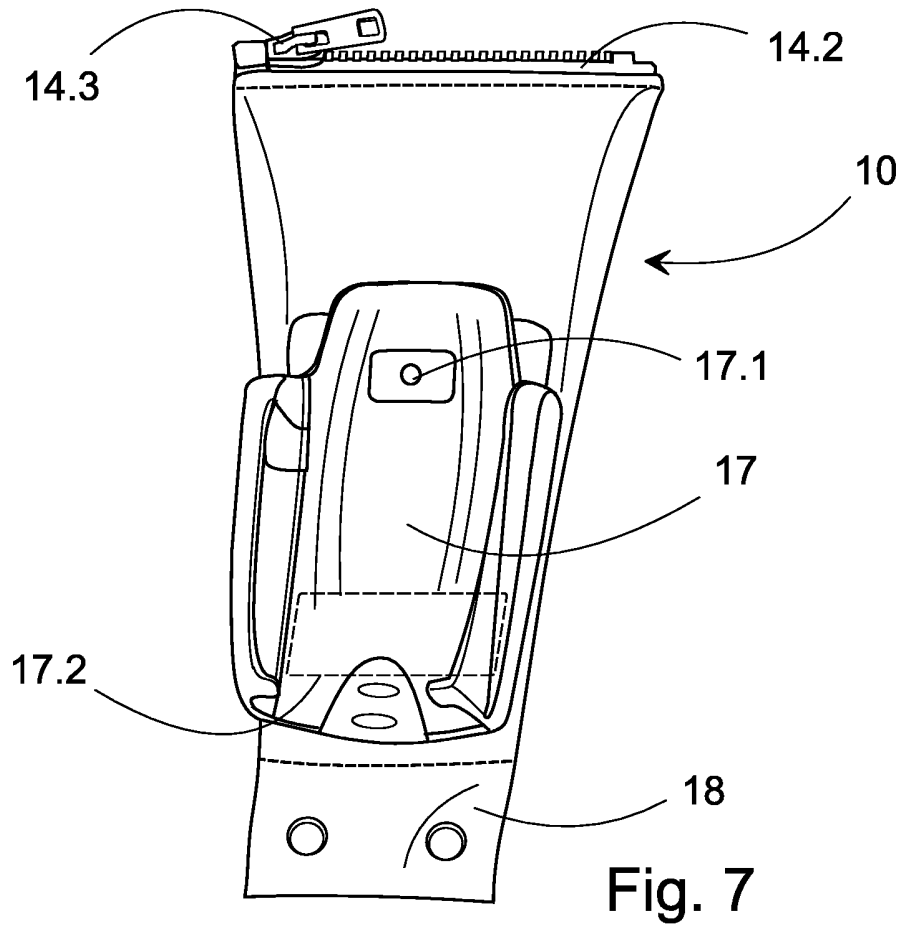


Fig. 6



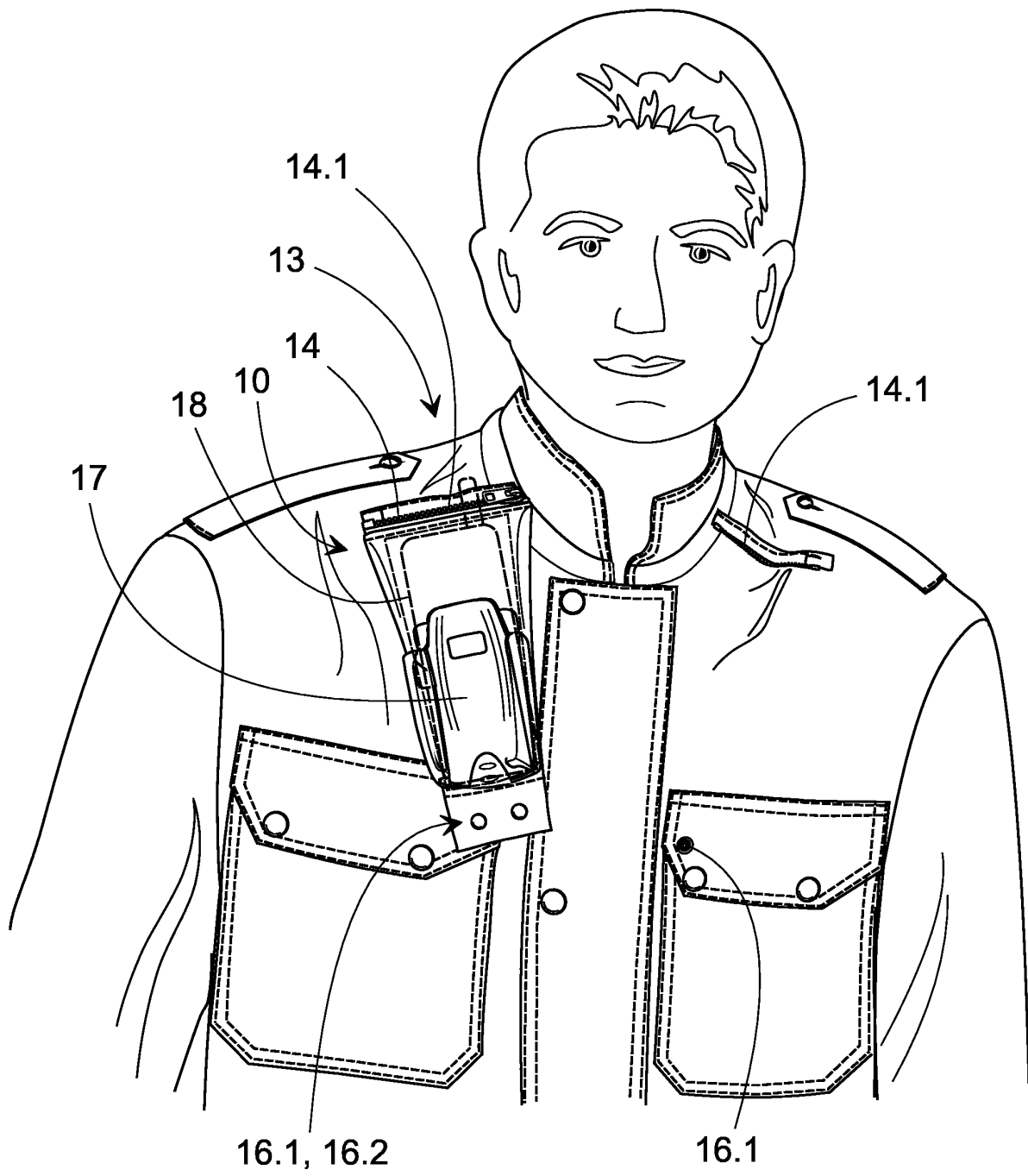


Fig. 9

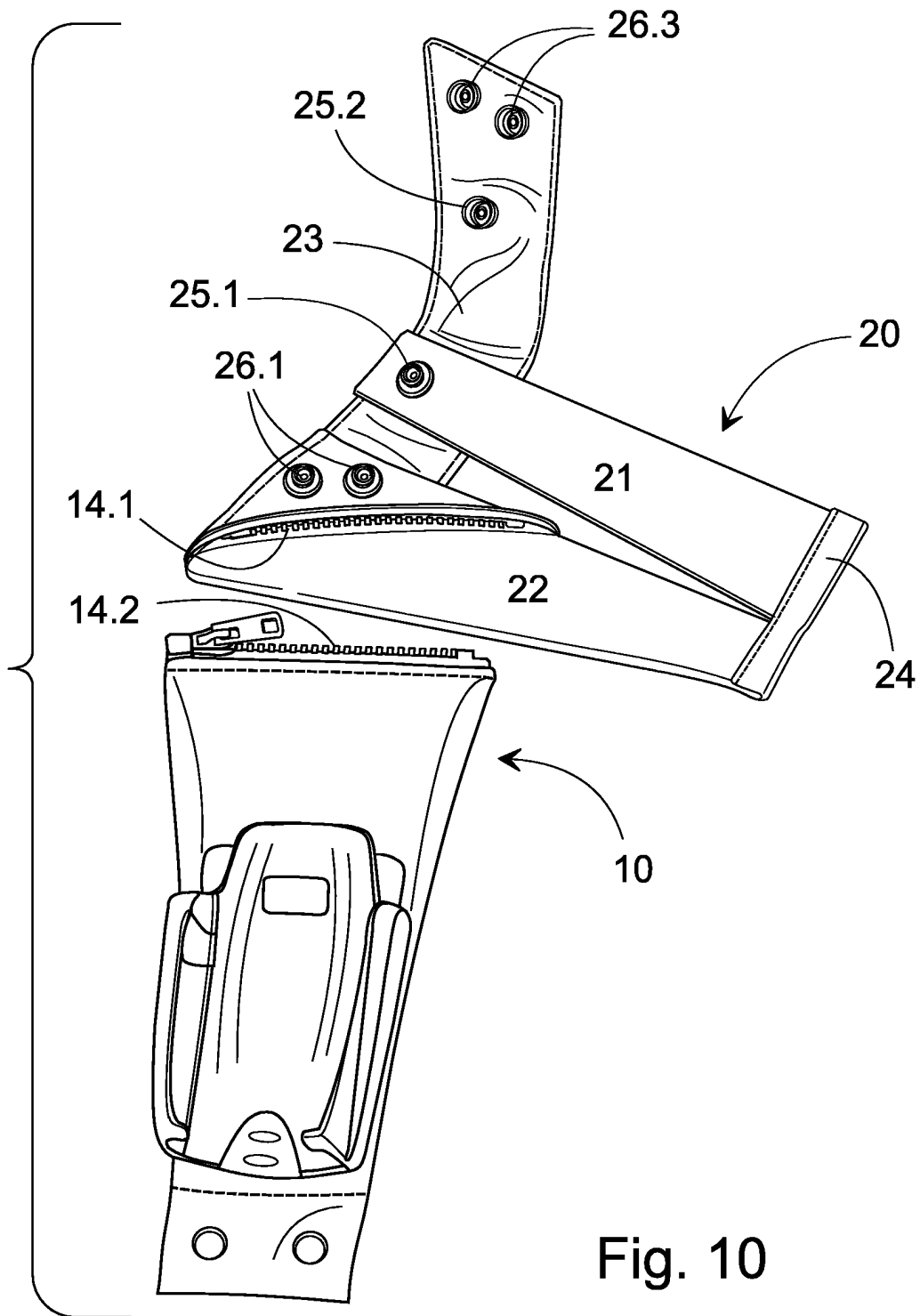


Fig. 10

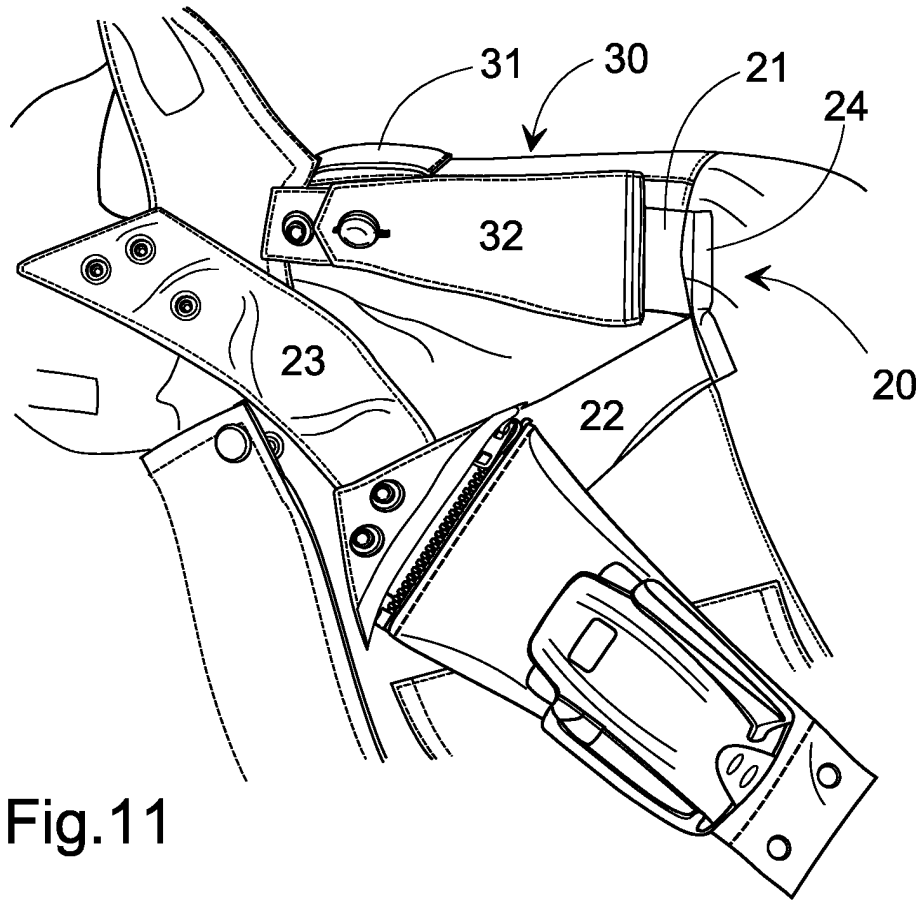


Fig. 11

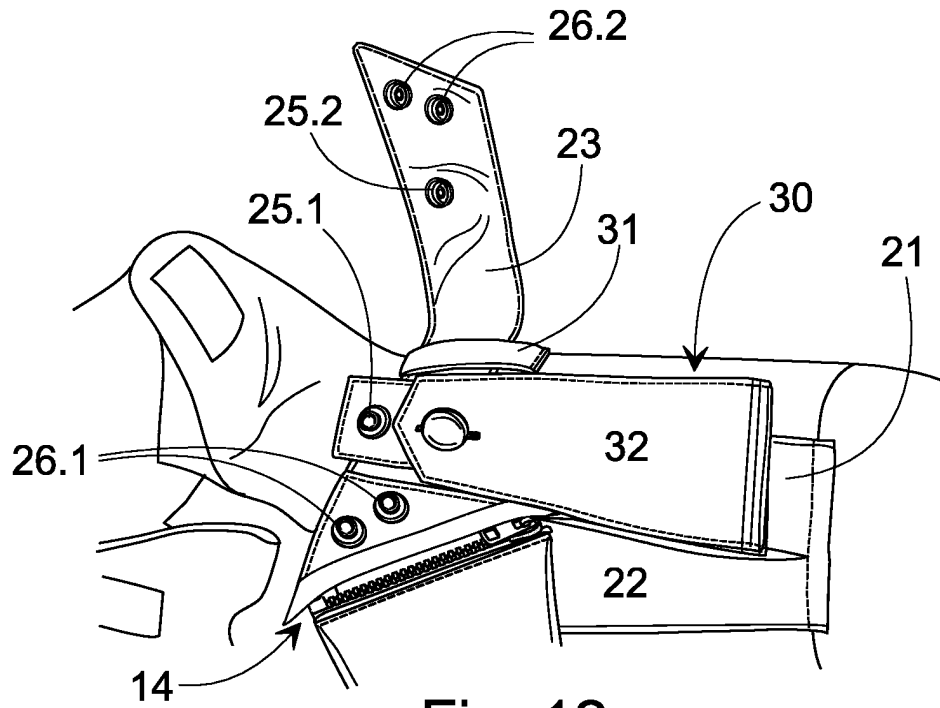
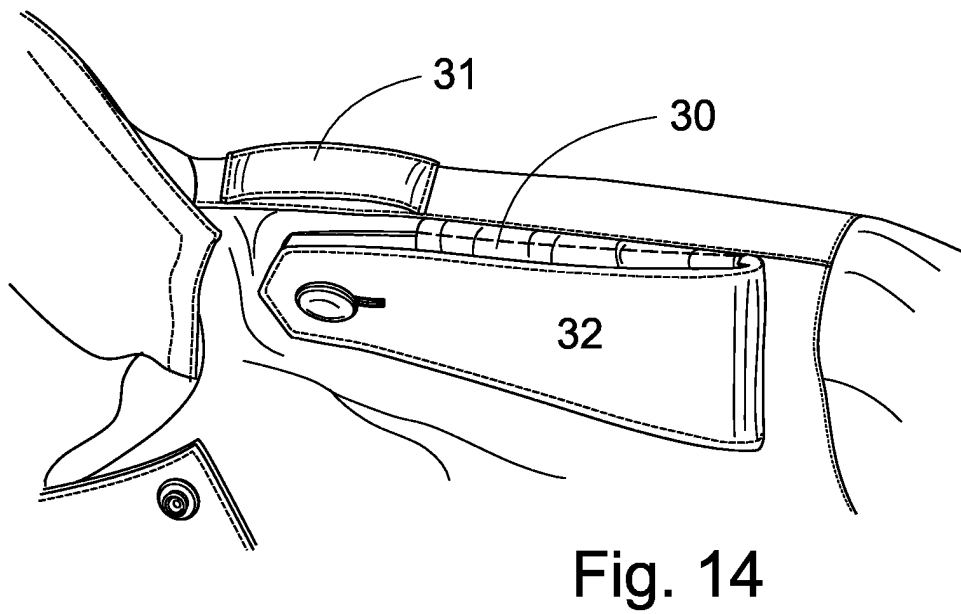
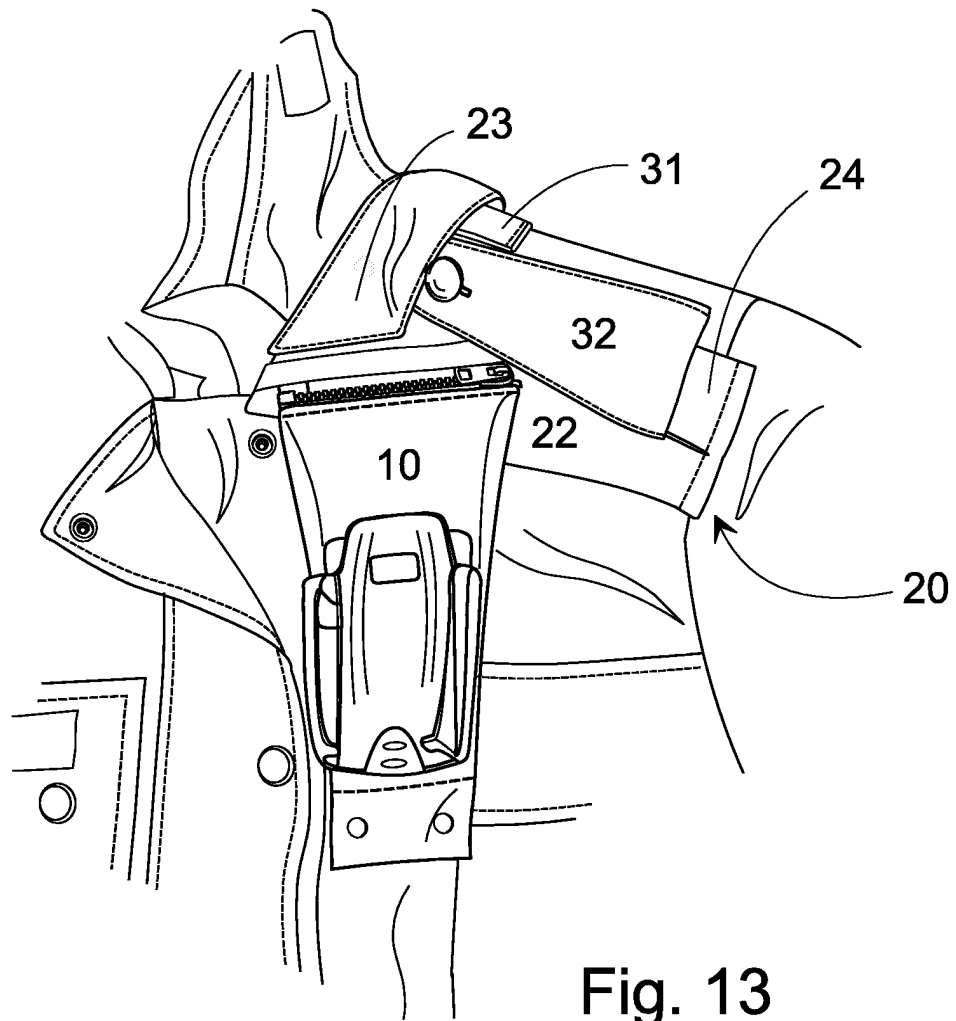


Fig. 12





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.7)	
X	FR 2 392 616 A (HOLLANDIA KIEVIT BV) 29 December 1978 (1978-12-29)	1-3	A41D27/20 //A45F5/02, A41D13/06	
Y	* page 2, line 8 - line 33 * * page 3, line 13 - line 19 * * page 4, line 10 - line 13; claims 1-3,5; figure 1 *	4-7		
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The present search report has been drawn up for all claims				
Place of search MUNICH		Date of completion of the search 13 February 2003	Examiner Uhlig, R	
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ----- & : member of the same patent family, corresponding document		

EPO FORM 1503 03.82 (P04C01)

**CLAIMS INCURRING FEES**

The present European patent application comprised at the time of filing more than ten claims.

- Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):
- No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:



The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. Claims: 1-4

Detachable attachment of a suspension device to a piece of garment with at least one zipper

2. Claim : 5

3. Claim : 5

Flap to cover / conceal / hide zipper

4. Claims: 6,7

adaptation of the pocket for a mobile raídos station

5. Claims: 8-11

holster for a mobile radio station being attached to the garment at the upper section via an epaulette and at the lower section with corresponding counter pieces, wherein the upper section of the holster consists of at least two parts, connected by a zipper

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 02 10 2652

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

13-02-2003

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