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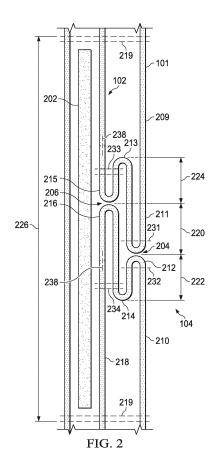
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Remarks:

Amended claims in accordance with Rule 137(2) EPC.

(54) Protective garment with pocket for a cushioning pad

(57) Embodiments of the disclosure relate generally to protective clothing (100) comprising one or more pockets (102) operable to hold cushioning pads (202) in strategic places on the clothing, such as knees, elbows, and shoulders, for example. The pocket opening (104) comprising a first opening layer (204) and a second opening layer (206) offset from the first opening layer. The opening would not comprise any other fastening elements, such as Velcro, hooks, closures, zippers, etc. which may be easily damaged. The offset or distance between the two opening layers would allow for easy insertion of the cushioning pad, while also preventing a cushioning pad from accidentally coming out of the pocket.



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Description

CROSS-REFERENCE TO RELATED APPLICATIONS

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[0001] Not applicable.

STATEMENT REGARDING FEDERALLY SPON-SORED RESEARCH OR DEVELOPMENT

[0002] Not applicable.

REFERENCE TO A MICROFICHE APPENDIX

[0003] Not applicable.

BACKGROUND

[0004] Protective clothing, such as pants, jackets, overalls, and suits, may comprise a plurality of safety and protective features. Some protective clothing may comprise pockets for holding removable and/or adjustable cushioning pads, which may be located at the knees, seat, thighs, elbows, shoulders, back, or any other location on the protective clothing that would benefit from extra protection or cushioning.

SUMMARY

[0005] Aspects of the disclosure may include embodiments of a protective clothing comprising an outer surface formed of a protective fabric; at least one pocket operable to hold a cushioning pad; an opening allowing access to the at least one pocket, wherein the opening comprises: a first opening layer; and a second opening layer located at least four centimeters offset from the first opening layer, wherein the opening is located on the outer surface of the protective clothing. In some embodiments, the protective clothing comprises protective pants. In some embodiments, the at least one pocket is located at one or more of the knees, the seat, and the thigh of the pants. In some embodiments, the protective clothing comprises a protective jacket. In some embodiments, the at least one pocket is located at one or more of the elbows, the shoulders, and the back of the jacket. In some embodiments, the protective clothing comprises one of: protective pants, protective jacket, protective suit, overalls, and coveralls. In some embodiments, the first opening layer and the second opening layer are formed of a fabric that is folded and stitched in place. In some embodiments, the fabric forming the first opening layer and second opening layer is the same fabric that forms the outer surface of the protective clothing.

[0006] Additional aspects of the disclosure may include embodiments of a pocket operable to hold a cushioned pad and for use on protective clothing, the pocket comprising a first opening layer; and a second opening layer located at least four centimeters offset from the first opening layer, wherein the opening layers are located on

an outer surface of the pocket; and wherein the opening layers allow access to the pocket for inserting and removing the cushioned pad. In some embodiments, the first opening layer and the second opening layer are formed of a fabric that is folded and stitched in place. In some embodiments, the outer surface of the pocket is formed of a protective fabric, and wherein the fabric forming the first opening layer and second opening layer is the same fabric that forms the outer surface of the pocket. In some embodiments, the pocket comprises one or more

of: a knee pocket, a thigh pocket, a seat pocket, an elbow pocket, a shoulder pocket, and a back pocket.

[0007] Other aspects of the disclosure may include embodiments of a method of forming an opening for a pocket for use on protective clothing, wherein the pocket is operable to hold a cushioned pad, the method comprising forming a first opening with a fabric, wherein the fabric forms an outer surface of the protective clothing; forming a second opening with the fabric, wherein the second opening is at least four centimeters offset from the first opening; and forming the pocket behind the outer surface of the outer surface, wherein the first opening layer and second opening layer allow access to the pocket.

[0008] In some embodiments, forming the first opening comprises folding and stitching the fabric to form a first upper fold and a first lower fold, wherein the first upper fold and first lower fold meet at their edges to form the first opening. In some embodiments, forming the second opening comprises folding and stitching the fabric to form a second upper fold and a second lower fold, wherein the second upper fold and second lower fold meet at their edges to form the second opening.

[0009] These and other features will be more clearly understood from the following detailed description taken in conjunction with the accompanying drawings and claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] For a more complete understanding of the present disclosure, reference is now made to the following brief description, taken in connection with the accompanying drawings and detailed description, wherein like reference numerals represent like parts.

FIG. 1 illustrates an exemplary embodiment of protective pants comprising one or more pockets for holding cushioning pads;

FIG. 2 illustrates a side view of an exemplary embodiment of an opening for a pocket on protective clothing; and

FIGS. 3A-3B illustrate an exemplary embodiment of a protective jacket comprising one or more pockets for holding cushioning pads.

DETAILED DESCRIPTION

[0011] It should be understood at the outset that al-

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though illustrative implementations of one or more embodiments are illustrated below, the disclosed systems and methods may be implemented using any number of techniques, whether currently known or not yet in existence. The disclosure should in no way be limited to the illustrative implementations, drawings, and techniques illustrated below, but may be modified within the scope of the appended claims along with their full scope of equivalents.

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[0012] The following brief definition of terms shall apply throughout the application:

[0013] The term "comprising" means including but not limited to, and should be interpreted in the manner it is typically used in the patent context;

[0014] The phrases "in one embodiment," "according to one embodiment," and the like generally mean that the particular feature, structure, or characteristic following the phrase may be included in at least one embodiment of the present invention, and may be included in more than one embodiment of the present invention (importantly, such phrases do not necessarily refer to the same embodiment);

[0015] If the specification describes something as "exemplary" or an "example," it should be understood that refers to a non-exclusive example;

[0016] The terms "about" or approximately" or the like, when used with a number, may mean that specific number, or alternatively, a range in proximity to the specific number, as understood by persons of skill in the art field; and

[0017] If the specification states a component or feature "may," "can," "could," "should," "would," "preferably," "possibly," "typically," "optionally," "for example," "often," or "might" (or other such language) be included or have a characteristic, that particular component or feature is not required to be included or to have the characteristic. Such component or feature may be optionally included in some embodiments, or it may be excluded.

[0018] Embodiments of the disclosure include embodiments of protective clothing comprising one or more pockets operable to hold cushioning pads in strategic places on the clothing, such as knees, elbows, and shoulders, for example. Applicants propose an improved pocket opening design, comprising a first opening layer and a second opening layer offset from the first opening layer. The opening would not comprise any other fastening elements, such as Velcro, hooks, closures, zippers, etc. which may be easily damaged. The offset or distance between the two opening layers would allow for easy insertion of the cushioning pad, while also preventing a cushioning pad from accidentally coming out of the pocket. Additionally, the two layers would prevent dust from entering the pocket, when the opening is located on the exterior of the protective clothing.

[0019] Referring now to FIG. 1, an exemplary article of protective clothing is shown. The protective clothing may comprise protective pants 100, wherein the pants 100 may comprise one or more pockets 102 operable to

hold a cushioning pad (not shown). In the embodiment of FIG. 1, the pockets 102 may be located near the knees of the pants 100, wherein the cushioning pad(s) would protect the knees of a user when kneeling, for example. In some embodiments, the pockets 102 may be formed of fabric sewn into or incorporated into the fabric of the pants 100. For example, the pockets 102 may be formed using a layer of fabric attached to the outer surface 101 of the pants 100, either in front of the outer surface 101 or behind the outer surface 101.

[0020] In an embodiment, the pants 100 may comprise one or more openings 104 allowing access to the interior of the pockets 102. The openings 104 may be located on the outer surface 101 of the pants 100, allowing access to the pockets 102 when the pants 100 are being worn by a user. In the embodiment of FIG. 1, the openings 104 may be formed of fabric, and may not comprise any sealing fixture, such as Velcro, hooks, closures, loops, etc. In some embodiments, the opening 104 may be formed and secured by stitching 106.

[0021] FIG. 2 illustrates a detailed view of the opening 104 and pocket 102 described above in FIG. 1, wherein the pocket 102 is operable to hold a cushioning (possibly foam) pad 202. In some embodiments, the opening 104 may comprise a first opening layer 204 and a second opening layer 206, wherein the second opening layer 206 may be offset from the first opening layer 204. In some embodiments, the second opening layer 206 may be located above the first opening layer 204 (with respect to the direction of the cushioning pad 202 will be inserted into the pocket 102), while in other embodiments, the second opening layer 206 may be located below the first opening layer 204. In some embodiments, the first opening layer 204 may be formed in the outer surface 101 of the protective clothing, wherein the outer surface 101 may comprise at least one layer of fabric (possibly protective fabric). In some embodiments, the second opening layer 106 may be located behind or underneath the outer surface 101 of the protective clothing.

40 [0022] In some embodiments, the first opening layer 204 and second opening layer 206 may be formed of one or more continuous fabric pieces 209 and 210, wherein the openings 204 and 206 may be formed by folds in the fabric 210 and stitches holding the fabric 210 in place. 45 For example, the first opening 204 may comprise a first upper fold 211 and a first lower fold 212 meeting at the edges to form the opening 204. The first upper fold 211 may be held in place by stitching 231. The first lower fold 212 may be held in place by stitching 232. In some embodiments, the second opening layer 206 may comprise a second upper fold 215 and a second lower fold 216 meeting at the edges to form the opening 206. The second upper fold 215 may be held in place may stitching 233. The second lower fold 216 may be held in place by stitching 234.

[0023] In some embodiments, the first and second upper folds 211 and 215 of the openings 204 and 206 may be formed from a continuous fabric 209, wherein between

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the first upper fold 211 and the second upper fold 215, the fabric 209 may form a first middle fold 213, and wherein the stitching 233 may hold the first middle fold 213 as well as the second upper fold 215. In some embodiments, the first and second lower folds 212 and 216 of the openings 204 and 206 may be formed from a continuous fabric 210, wherein between the first lower fold 212 and the second lower fold 216, the fabric 210 may form a second middle fold 214, and wherein the stitching 234 may hold the second middle fold 214 as well as the second lower fold 216. In some embodiments, the folds and stitches may be formed and positioned so that the distance 220 between the first opening 204 and the second opening 206 is at least approximately 4 centimeters (cm). In other embodiments, the distance 220 may be between approximately 4 cm and 6 cm. In still other embodiments, the distance 220 may be less than approximately 10 cm.

[0024] In some embodiments, the distance 222 between the first opening 204 and the second middle fold 214 (which may be also known as the height of the first lower fold 212) may be approximately 2 cm. In other embodiments, the distance 222 may be between approximately 1 cm and 4 cm. In some embodiments, the distance 224 between the second opening 206 and the first middle fold 213 (which may be also known as the height of the second upper fold 215) may be approximately 2 cm. In other embodiments, the distance 224 may be between approximately 1 cm and 4 cm.

[0025] In some embodiments, the pocket 102 may be formed by layers of fabric 218 located behind the outer surface 101 of the protective clothing. In some embodiments, the fabric 218 of the pocket 102 may be attached held in place and attached to the outer surface 101 via stitching 219. In some embodiments, the fabric 218 of the pocket 102 may be attached to the fabric 209 and 210 forming the first opening 204 and second opening 206 via stitching 238. In an alternative embodiment, the fabric 218 of the pocket 102 may be continuous with the fabric 209 and 210 forming the openings 204 and 206. In some embodiments, the pocket 102 may be shaped and sized to fit a standard cushioning pad 202, wherein the size and shape of the pad 202 may vary based on the location (e.g. a knee pad may be different than an elbow or should pad). In some embodiments, the length 226 (or height) of the pocket 102 may be approximately 35 centimeters. In other embodiments, the length 226 may be chosen based on the size of the pad 102.

[0026] FIGS. 3A-3B illustrate another exemplary embodiment of a protective clothing article comprising one or more pockets 302 operable to hold as cushioning pad (not shown). In the embodiment of FIGS. 3A-3B, the protective clothing may comprise a jacket 300, wherein FIG. 3A shows the front 320 of the jacket 300 and FIG. 3B shows the back 322 of the jacket 300. In some embodiments, the jacket 300 may comprise one or more pockets 302 on the shoulder 324 of the jacket 300, one or more pockets 302 on the arms 326 (or elbows) of the jacket 300, and one or more pockets 302 on the back 322 of

the jacket 300. In some embodiments, the pockets 102 may be formed of fabric sewn into or incorporated into the fabric of the pants 100. For example, the pockets 102 may be formed using a layer of fabric attached to the outer surface 101 of the pants 100, either in front of the outer surface 101 or behind the outer surface 101. In the embodiment shown, the pockets 302 of the jacket 300 may be similar to the pockets 102 described above in FIGS. 1 and 2.

[0027] In an embodiment, the jacket 300 may comprise one or more openings 304 allowing access to the interior of the pockets 302. The openings 304 may be located on the outer surface 301 of the jacket 300, allowing access to the pockets 302 when the jacket 300 is being worn by a user. In the embodiment of FIGS. 3A-3B, the openings 304 may be formed of fabric, and may not comprise any sealing fixture, such as Velcro, hooks, closures, loops, etc. In some embodiments, the opening 304 may be formed and secured by stitching 306.

[0028] Embodiments of the disclosure comprise a method of forming an opening for a pocket for use on protective clothing, wherein the pocket is operable to hold a cushioned pad. The method may comprise forming a first opening with a fabric, wherein the fabric forms an outer surface of the protective clothing. The method may comprise forming a second opening with the fabric, wherein the second opening is at least four centimeters offset from the first opening. The method may comprise forming the pocket behind the outer surface of the outer surface, wherein the first opening layer and second opening layer allow access to the pocket.

[0029] In some embodiments, forming the first opening comprises folding and stitching the fabric to form a first upper fold and a first lower fold, wherein the first upper fold and first lower fold meet at their edges to form the first opening. In some embodiments, forming the second opening comprises folding and stitching the fabric to form a second upper fold and a second lower fold, wherein the second upper fold and second lower fold meet at their edges to form the second opening.

[0030] While various embodiments in accordance with the principles disclosed herein have been shown and described above, modifications thereof may be made by one skilled in the art without departing from the spirit and the teachings of the disclosure. The embodiments described herein are representative only and are not intended to be limiting. Many variations, combinations, and modifications are possible and are within the scope of the disclosure. Alternative embodiments that result from combining, integrating, and/or omitting features of the embodiment(s) are also within the scope of the disclosure. Accordingly, the scope of protection is not limited by the description set out above, but is defined by the claims which follow, that scope including all equivalents of the subject matter of the claims. Each and every claim is incorporated as further disclosure into the specification and the claims are embodiment(s) of the present invention(s). Furthermore, any advantages and features de-

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scribed above may relate to specific embodiments, but shall not limit the application of such issued claims to processes and structures accomplishing any or all of the above advantages or having any or all of the above features.

[0031] Additionally, the section headings used herein are provided for consistency with the suggestions under 37 C.F.R. 1.77 or to otherwise provide organizational cues. These headings shall not limit or characterize the invention(s) set out in any claims that may issue from this disclosure. Specifically and by way of example, although the headings might refer to a "Field," the claims should not be limited by the language chosen under this heading to describe the so-called field. Further, a description of a technology in the "Background" is not to be construed as an admission that certain technology is prior art to any invention(s) in this disclosure. Neither is the "Summary" to be considered as a limiting characterization of the invention(s) set forth in issued claims. Furthermore, any reference in this disclosure to "invention" in the singular should not be used to argue that there is only a single point of novelty in this disclosure. Multiple inventions may be set forth according to the limitations of the multiple claims issuing from this disclosure, and such claims accordingly define the invention(s), and their equivalents, that are protected thereby. In all instances, the scope of the claims shall be considered on their own merits in light of this disclosure, but should not be constrained by the headings set forth herein.

[0032] Use of broader terms such as comprises, includes, and having should be understood to provide support for narrower terms such as consisting of, consisting essentially of, and comprised substantially of. Use of the term "optionally," "may," "might," "possibly," and the like with respect to any element of an embodiment means that the element is not required, or alternatively, the element is required, both alternatives being within the scope of the embodiment(s). Also, references to examples are merely provided for illustrative purposes, and are not intended to be exclusive.

[0033] While several embodiments have been provided in the present disclosure, it should be understood that the disclosed systems and methods may be embodied in many other specific forms without departing from the spirit or scope of the present disclosure. The present examples are to be considered as illustrative and not restrictive, and the intention is not to be limited to the details given herein. For example, the various elements or components may be combined or integrated in another system or certain features may be omitted or not implemented.

[0034] Also, techniques, systems, subsystems, and methods described and illustrated in the various embodiments as discrete or separate may be combined or integrated with other systems, modules, techniques, or methods without departing from the scope of the present disclosure. Other items shown or discussed as directly coupled or communicating with each other may be indi-

rectly coupled or communicating through some interface, device, or intermediate component, whether electrically, mechanically, or otherwise. Other examples of changes, substitutions, and alterations are ascertainable by one skilled in the art and could be made without departing from the spirit and scope disclosed herein.

Claims

1. A protective clothing (100) comprising:

an outer surface (101) formed of a protective fabric;

at least one pocket (102) operable to hold a cushioning pad (202);

an opening (104) allowing access to the at least one pocket, wherein the opening comprises:

a first opening layer (204); and a second opening layer (206) located at least four centimeters offset from the first opening layer (204), wherein the opening (104) is located on the outer surface of the protective clothing (100).

- **2.** The protective clothing of claim 1, wherein the protective clothing comprises protective pants (100).
- **3.** The protective clothing of claim 2, wherein the at least one pocket (102) is located at one or more of the knees, the seat, and the thigh of the pants (100).
- **4.** The protective clothing of claim 1, wherein the protective clothing comprises a protective jacket (300).
- 5. The protective clothing of claim 4, wherein the at least one pocket (302) is located at one or more of the elbows, the shoulders, and the back of the jacket (300).
- **6.** The protective clothing of claim 1, wherein the protective clothing (100) comprises one of:
- protective pants, protective jacket, protective suit, overalls, and coveralls.
- 7. The protective clothing of claim 1, wherein the first opening layer (204) and the second opening layer (206) are formed of a fabric (209, 210) that is folded and stitched in place.
- 8. The protective clothing of claim 7, wherein the fabric forming the first opening layer (204) and second opening layer (206) is the same fabric that forms the outer surface (101) of the protective clothing (100).
- 9. A pocket (102) operable to hold a cushioned pad

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(202) and for use on protective clothing (100), the pocket (102) comprising:

a first opening layer (204); and a second opening layer (206) located at least four centimeters offset from the first opening layer (204),

wherein:

the opening layers (204, 206) are located on an outer surface of the pocket (102); and the opening layers (204, 206) allow access to the pocket (102) for inserting and removing the cushioned pad (202).

- **10.** The pocket of claim 9, wherein the first opening layer (204) and the second opening layer (206) are formed of a fabric (209, 210) that is folded and stitched in place.
- 11. The pocket of claim 10, wherein the outer surface (101) of the pocket (102) is formed of a protective fabric, and wherein the fabric forming the first opening layer (204) and second opening layer (206) is the same fabric that forms the outer surface (101) of the pocket (102).
- **12.** The pocket of claim 9, wherein the pocket (102) comprises one or more of: a knee pocket, a thigh pocket, a seat pocket, an elbow pocket, a shoulder pocket, and a back pocket.
- **13.** A method of forming an opening for a pocket for use on protective clothing, wherein the pocket is operable to hold a cushioned pad, the method comprising:

forming a first opening with a fabric, wherein the fabric forms an outer surface of the protective clothing:

forming a second opening with the fabric, wherein the second opening is at least four centimeters offset from the first opening; and forming the pocket behind the outer surface of

the outer surface, wherein the first opening layer and second opening layer allow access to the pocket.

- 14. The method of claim 13, wherein forming the first opening comprises folding and stitching the fabric to form a first upper fold and a first lower fold, wherein the first upper fold and first lower fold meet at their edges to form the first opening.
- 15. The method of claim 13, wherein forming the second opening comprises folding and stitching the fabric to form a second upper fold and a second lower fold, wherein the second upper fold and second lower fold meet at their edges to form the second opening.

Amended claims in accordance with Rule 137(2) EPC.

1. A protective clothing (100) comprising:

an outer surface (101) formed of a protective fabric:

at least one pocket (102) operable to hold a cushioning pad (202);

an opening (104) allowing access to the at least one pocket, wherein the opening comprises:

a first opening (204) in a first layer; and a second opening (206) in a second layer, the second opening (206) being located at least four centimeters offset from the first opening layer (204), wherein the opening (104) is located on the outer surface of the protective clothing (100).

- **2.** The protective clothing of claim 1, wherein the protective clothing comprises protective pants (100).
- **3.** The protective clothing of claim 2, wherein the at least one pocket (102) is located at one or more of the knees, the seat, and the thigh of the pants (100).
- **4.** The protective clothing of claim 1, wherein the protective clothing comprises a protective jacket (300).
- The protective clothing of claim 4, wherein the at least one pocket (302) is located at one or more of the elbows, the shoulders, and the back of the jacket (300).
- **6.** The protective clothing of claim 1, wherein the protective clothing (100) comprises one of: protective pants, protective jacket, protective suit, overalls, and coveralls.
- 7. The protective clothing of claim 1, wherein the first opening layer (204) and the second opening layer (206) are formed of a fabric (209, 210) that is folded and stitched in place.
- The protective clothing of claim 7, wherein the fabric forming the first opening layer (204) and second opening layer (206) is the same fabric that forms the outer surface (101) of the protective clothing (100).
- **9.** A pocket (102) operable to hold a cushioned pad (202) and for use on protective clothing (100), the pocket (102) comprising:

a first opening layer (204); and a second opening layer (206) located at least four centimeters offset from the first opening layer (204),

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wherein:

the opening layers (204, 206) are located on an outer surface of the pocket (102); and the opening layers (204, 206) allow access to the pocket (102) for inserting and removing the cushioned pad (202).

10. The pocket of claim 9, wherein the first opening layer (204) and the second opening layer (206) are formed of a fabric (209, 210) that is folded and stitched in place.

11. The pocket of claim 10, wherein the outer surface (101) of the pocket (102) is formed of a protective fabric, and wherein the fabric forming the first opening layer (204) and second opening layer (206) is the same fabric that forms the outer surface (101) of the pocket (102).

12. The pocket of claim 9, wherein the pocket (102) comprises one or more of: a knee pocket, a thigh pocket, a seat pocket, an elbow pocket, a shoulder pocket, and a back pocket.

13. A method of forming an opening (<u>104</u>) for a pocket (<u>102</u>) for use on protective clothing, wherein the pocket (<u>102</u>) is operable to hold a cushioned pad, the method comprising:

forming a first opening ($\underline{204}$) in a first fabric, wherein the fabric forms an outer surface ($\underline{101}$) of the protective clothing;

forming a second opening $(\underline{206})$ in a second fabric, wherein the second opening $(\underline{206})$ is at least four centimeters offset from the first opening $(\underline{204})$, and

forming the pocket $(\underline{102})$ behind the outer surface $(\underline{101})$, wherein the first opening $(\underline{204})$ and second opening $(\underline{206})$ allow access to the pocket $(\underline{102})$.

14. The method of claim 13, wherein forming the first opening (<u>204</u>) comprises folding and stitching the first fabric to form a first upper fold (<u>211</u>) and a first lower fold (<u>212</u>), wherein the first upper fold (<u>211</u>) and first lower fold (<u>212</u>) meet at their edges to form the first opening (<u>204</u>).

15. The method of claim 13, wherein forming the second opening (<u>206</u>) comprises folding and stitching the second fabric to form a second upper fold (<u>215</u>) and a second lower fold (<u>216</u>), wherein the second upper fold (<u>215</u>) and second lower fold (<u>216</u>) meet at their edges to form the second opening (<u>206</u>).

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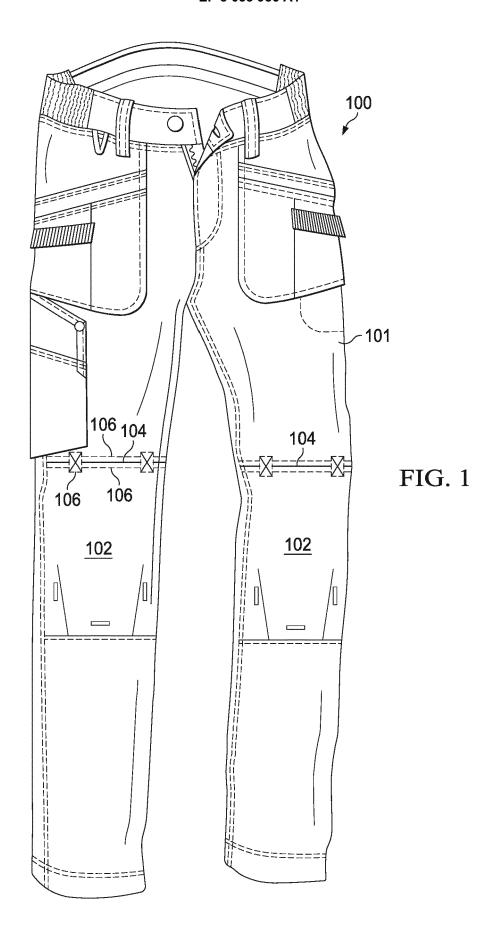
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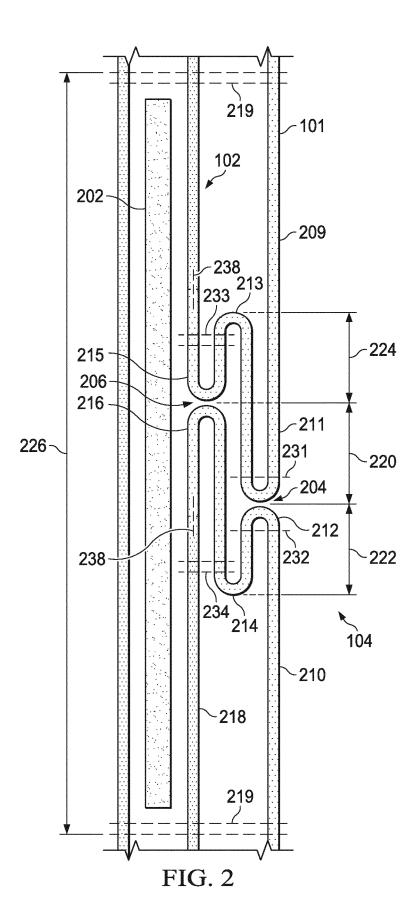
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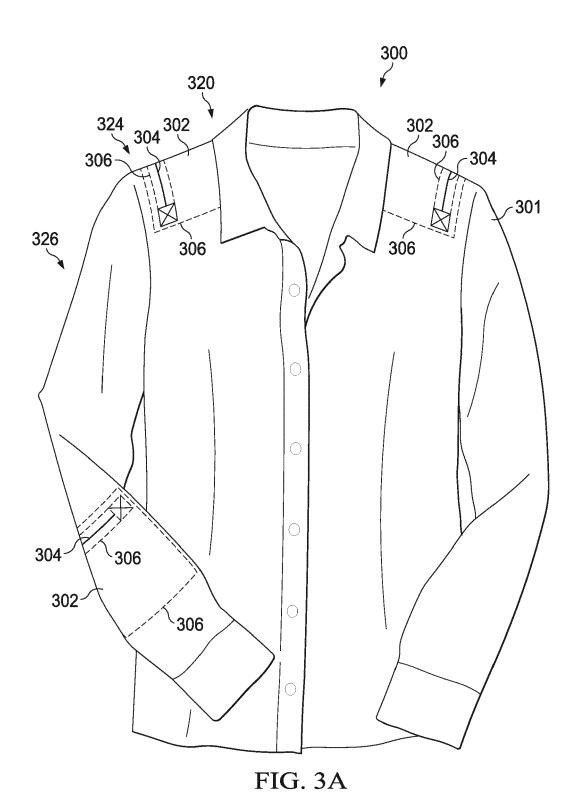
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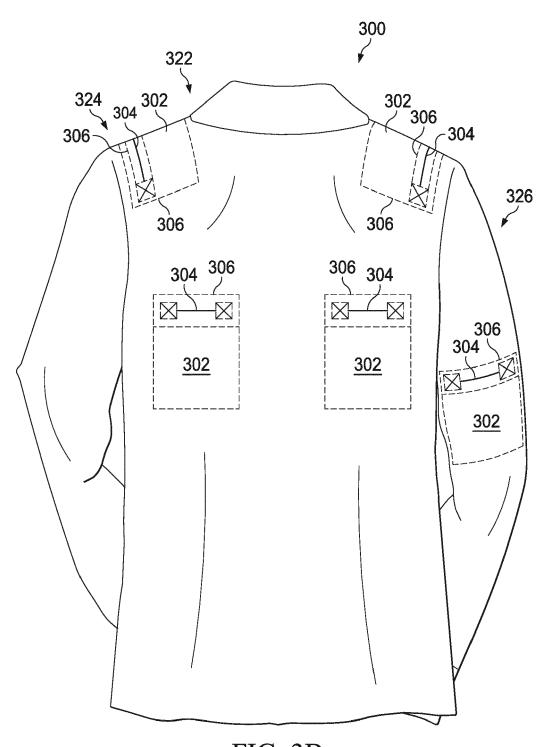


FIG. 3B



EUROPEAN SEARCH REPORT

Application Number EP 14 19 8676

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

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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.

28-05-2015

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