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- (73) Patenthaver: **Cisar, Zdenek, Kotkova 20, 79601 Prostejov, Tjekkiet**
- (72) Opfinder: **Cisar, Zdenek, Kotkova 20, 79601 Prostejov, Tjekkiet**
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DescriptionField of the Invention

[0001] The invention relates to a system for attaching items furnished with fastening elements to a supporting surface of a tactical vest consisting of at least two overlapping, approximately perpendicular strap systems attached to the supporting surface of the tactical vest such that each strap creates with the adjacent part of the supporting surface a series of closed loops for the pushing through the fastening elements of items.

Background of the Invention

[0002] The strap systems of this type, known in the technical practice also as loop systems, started to be applied namely in connection with the development of the so called tactical or protective vests. These are intended for persons performing activities with extraordinary demands on the protection against outer interferences or impacts and requiring different additional elements of gears and equipment to handle such situations. Such elements of gear and equipment must be reliably attached to the vest and they must be at the same time easily accessible.

[0003] The use of the above described strap systems is obviously not limited to tactical or protective vests, but may be applied also to parts of clothing, or carrying devices directed to other purposes.

[0004] One of the known strap systems is, for example, disclosed in the patent US 5,724,707 or in the document US 2013126566. The patent US 8,490,212 also discloses a system of two mutually perpendicular strap sets as a part of a quick fastening system of a tactical vest. Other solutions, motivated by an attempt to make the strap systems more universal, are disclosed, for example, in the Czech utility models PUV 15505, PUV 22463 and PUV 23698.

[0005] The task of the present invention is to create a strap system which would increase the adaptability for different widths of fastening elements and provided further possible uses compared to the current state of the art. Another task of the invention is to achieve this goal by the simplest possible means.

Summary of the Invention

[0006] The objective of the invention is achieved by providing a system for attaching items furnished with fastening elements to a supporting surface of a tactical vest, the system consisting of at least two overlapping, approximately perpendicular strap systems attached to the supporting surface of the tactical vest so that each strap, together with an adjacent part of the tactical vest supporting surface, forms a series of closed loops for pushing through the fastening elements of the item. According to the present invention, the first strap system is formed by strap groups, each of them consisting of at least two straps placed next to each other, and the second strap system is formed by individual straps or groups of straps placed next to each other, separated mutually by gaps, wherein the strap groups of the first strap system are sewn with stitches to the supporting surface of the tactical vest at locations where they are overlapped by individual straps or straps of the strap groups of the second strap system, and the individual straps and/or strap groups of the second strap system are stitched with stitches to the supporting surface of the tactical vest in locations where these straps overlap the straps of the first strap system, or the individual straps and/or straps of the strap groups of the second strap system are sewn on the supporting surface of the tactical vest with stitches along the outer edges of the strap groups of the first strap system, or with stitches along the outer edges of one of the straps of the strap groups of the first strap system, or with stitches in the gaps between the strap groups of the first strap system.

[0007] Embodiments of the invention which further expand or specify the essential features of the inventions are described below.

[0008] The first strap system is formed by strap pairs or triplets, separated by a gap, or strap groups placed next to each other.

[0009] The straps of one group have the same width as the straps of another group of the first strap system and the width of the gap between strap groups corresponds to a multiple of the distance between the identically oriented edges of juxtaposed straps within a strap group.

[0010] The objective of the invention was achieved by the features of the patent claims 1 to 3.

[0011] The present invention based on the use of strap groups in individual systems of straps enables a high variability of embodiments both by selecting the number of straps in individual strap groups, and by selecting their width, and also by the selection of the placement of

stitches. It is thus possible to achieve a safe attachment of fastening elements of different widths according to different known standards, such as those having widths of 10 or 20 mm, or ½, 1 or 1.5 inch, including using the so called MOLLE system.

[0012] The attachment may be also made on several parallel loops of the straps, and in both directions – horizontal and vertical. Moreover, it is possible to select the pushing of the fastening elements, as for example flexible textile fabric, leather or plastic belts, through the loops of both strap systems in smaller steps – distances, which are defined by the width of one single strap within a strap group.

[0013] The invention will be further explained in detail by means of drawings, whereas:

Fig. 1 depicts a sector of the system with two overlapping systems of straps with a variable width of loops and with one to two straps in the strap groups.

Fig. 2 depicts a sector of the system with two overlapping systems of straps with one to three straps in the strap groups.

Examples of embodiment

[0014] Fig. 1 shows one of the possible embodiments of the system according to the invention in the form of a sector of the supporting surface 1, which is made of textile fabric as a part of the tactical vest. To the supporting surface 1 of the tactical vest, the strap group A of the first strap system with vertically oriented straps 2 is stitched at the first place and the second strap system is situated perpendicularly over these straps. The second strap system consists of horizontally oriented individual parallel straps 4 or strap groups B of straps 4. All straps are attached to the supporting surface 1 of the tactical vest so that each strap, together with the adjacent part of the supporting surface 1 forms a series of closed loops, through which a fastening element of items intended to be attached to the vest or other part of clothing may be pushed. Obviously, between the individual straps 2 of the strap group A and individual straps 4 of the strap group B, narrow gaps were kept to push through the fastening elements.

[0015] An identification of the vertical or horizontal direction of straps in the straps system naturally refers only to Fig. 1 and the whole system may be in practice rotated 90 °, so that the position of the straps is switched. Flexible textile, leather or plastic belts or straps, or even

solid bolts which form parts of the attached items may be used as fastening elements. Their width may be different according to the type of attached items and optionally according to the requirements of users. In order to guarantee a more stable attachment, the items may be provided on their rear side with additional fastening loops or similar means, such as clasps, Velcro fastenings, press studs, whereas the loops go usually in a perpendicular direction to the fastening elements. The fastening belts are first pushed through one loop, then through the additional fastening loop and then through another loop. After being pushed through the loops, the fastening belts are attached to the item attached by clasps, Velcro fastenings, press studs etc.

[0016] As shown on Fig. 1, the first strap system consists of vertically oriented strap groups A which are formed by pair of straps 2 placed parallel next to each other. The pairs of straps 2 of the strap group A are mutually placed at a distance D3.

[0017] The second strap system is formed by horizontally oriented individual straps 4 or groups B of pairs of straps 4 with the distance D1 between adjacent edges of neighbouring individual straps and the distance D2 between the adjacent edges of the pair of straps of the strap group A, the individual straps 4 and the straps 4 of the strap group B having the same width.

[0018] The straps 2 of the strap group A are stitched to the supporting surface 1 of the tactical vest by stitches 25 located in the place where the straps 4 overlap the straps 2, so that they are not visible from an upper view and they are depicted in a broken line on only one of the straps 4. The straps 2 may be stitched to the supporting surface 1 of the tactical vest also by different methods than by straight stitches 25 in the longitudinal direction of the straps 4, for example by stitches leading in the transverse direction of the straps 4, or by stitches in the shape of a rectangular.

[0019] The width of the vertical loops P1 formed by straps 2 of the strap group A thus corresponds to the distance D1 between the individual straps 4 and the width of the vertical loops P2 formed by straps 2 of the strap group B thus corresponds to the distance D2.

[0020] The individual straps 4 and straps 4 of the strap group B may be sewn to the supporting surface 1 of the tactical vest on different places, thus allowing a tight and stable passing of fastening elements of different widths.

[0021] In one embodiment, the straps 4 are stitched by stitches 51 and the widths of the horizontal loops between stitches 51, and thus the maximum widths of the fastening elements are determined by the widths of horizontal loops P4 and P6. According to another embodiment, the straps 4 are stitched by stitches 52 and the widths of the horizontal loops P5 and P3 between stitches 52 are determined by the inner and outer distance of stitches 52.

[0022] It is evident that the positioning of stitches on individual straps 4 and on the straps 4 of the strap group B may be implemented also on other places than the above mentioned, thus determining the required width of the horizontal loops according to the width of fastening elements. Both above described arrangements of stitches may be done, for example, alternately on one supporting surface 1 of the tactical vest, and they may be differentiated by colours for easier orientation. This multiple variability of the embodiments, based on the selection of the number of straps, their width, and the placement of stitches, enables to achieve a safe and precise attachment of fastening elements of different widths according to different known standards, for example 10 or 20 mm, or $\frac{1}{2}$, 1 or 1.5 inch, possible on more parallel loops. Apart from that, the places of the attachment may be selected according to the placement of additional loops or other attaching elements on the item attached, so that these loops or attaching elements fit into the gap between the loops of the oppositely oriented strap system.

[0023] Fig. 2 shows other two alternative variants of strap systems, again in the form of a sector of the supporting surface 1 of the tactical vest – with two groups A and A1 of horizontally oriented straps 2 having the same width, and individual vertically oriented straps 4 of the same width. The strap group A1 consists of triplets of straps 2, and the strap group A consists of pairs of straps 2. Identically as in the embodiment according to Fig. 1, the straps 2 of the strap groups A and A1 are sewn to the supporting surface 1 in places where straps 4 overlap straps 2 and they are not depicted on Fig. 2. All other stitches are depicted only demonstratively and not on all places where they belong according to the particular embodiment.

[0024] The individual straps 4 forming vertical loops are stitched in the area of the strap group A1 to the supporting surface 1 in its non-covered part by pairs of stitches 53, along the edges of the outer straps 2 of the triplets of straps of strap groups A1. In the area of the strap group A with pairs of straps 2, the straps 4 are stitched to the supporting surface in places

which are not covered by straps 2, by means of stitches 54 which are placed below the edge of the lower strap 2 of the pair of straps 2.

[0025] With the same width of the straps 2 and the distance between the pair and triplets of straps 2 of the strap groups A and A1 corresponding to a multiple of the distance between identically oriented edges of juxtaposed straps in the group of straps 2, the widths of the vertical loops in both strap systems are determined by the same distance P7 between the outer stitches 53 and 54. The width P1 of the horizontal loops is then determined by the distance D4 between the edges of the straps.

[0026] The strap group A1 consisting of triplets of straps 2 enables a strong and precise attaching of fastening elements depending on their width, and optionally placement of their additional loops, by pushing them under one to three straps 2. Apart from that, the system makes it possible to attach an item in a highly stable and strong way so that fastening elements may be pushed under provided loops in more places.

[0027] The distance D4 between individual straps 4 may be selected to be approximately equal to the width of the vertical loops P7 between the stitches 53 and 54, and in this case, the strap system will be intended for fastening elements of the same width, or this distance may be selected to be different, and then fastening elements for attaching to horizontal loops and vertical loops of different widths can be used. The same conditions apply to the embodiment according to Fig. 2 as to the embodiment according to Fig. 1. The stitches on straps 4 in the strap groups A and A1 may be done also in other places than those described in the example, and thus the widths of the horizontal loops may be adapted to different widths of the fastening elements.

[0028] The above described embodiments do not exclude another variant according to which the straps 2 of the strap group A1 are formed for example by groups of four straps 2, which with the exception of narrow gaps between the straps 2 for pushing through the fastening elements of items cover the whole supporting surface 1 of the tactical vest. There is also a further variant of positioning the stitches 53 and 54, according to which the stitches may be placed in different distances on the edges of the straps or in the gaps between the straps. In this respect, further variants of the width of the vertical loops formed by individual straps 4 offer themselves.

PATENTKRAV

1. Et system til at fastgøre genstande, der er forsynet med fastgørelseselementer til en støttende overflade (1) af en taktisk vest, bestående af mindst to overlappende, tilnærmelsesvis vinkelret forløbende båndsystemer fastgjort til den støttende overflade af den taktiske vest, således at hvert bånd (2, 4) sammen med en tilstødende del af den taktiske vests støttende overflade (1) danner en serie af lukkede sløjfer til igennem disse at skubbe fastgørelseselementerne af genstanden,

kendetegnet ved, at

- 10 det første båndsystem består af båndgrupper (A, A1), hvoraf hver båndgruppe (A, A1) består af mindst to tilstødende bånd (2), og det andet båndsystem består af individuelle bånd (4) adskilt ved et mellemrum, eller båndgrupper (B) af ved siden af hinanden beliggende bånd (4), hvor båndene (2) af båndgrupperne (A, A1) af det første båndsystem er syet på den støttende overflade (1) af den taktiske vest med sting (25) på de steder, hvor de er overlappet af de
- 15 individuelle bånd (4) eller båndene (4) af båndgrupperne (B) af det andet båndsystem, og de individuelle bånd (4) og/eller båndene (4) af båndgrupperne (B) af det andet båndsystem er syet på den støttende overflade (1) af den taktiske vest med stingene på de steder, hvor de overlapper båndene (2) af det første båndsystem, eller
- 20 de individuelle bånd (4) og/eller båndene (4) af båndgrupperne (B) af det andet båndsystem er syet på den støttende overflade (1) af den taktiske vest med stingene (51) langs de ydre kanter af båndgrupperne (A, A1) af båndene (2) af det første båndsystem, eller med stingene (52) langs de ydre kanter af et af båndene (2) af båndgrupperne (A, A1) af det første båndsystem, eller
- 25 med stingene (54, 53) i mellemrummene imellem båndgrupperne (A, A1) af båndene (2) af det første båndsystem.
2. Et system ifølge krav 1, **kendetegnet ved** at det første båndsystem består af båndparrene eller tre-båndgrupper (A, A1) indbyrdes adskilt af et mellemrum.
3. Et system ifølge krav 1 eller 2, **kendetegnet ved** at båndene (2) af en båndgruppe (A, A1) har den samme bredde som båndene (2) af den anden båndgruppe (A, A1) af det første båndsystem, og at bredden af mellemrummene imellem båndgrupperne (A, A1) svarer til et multiplum af afstanden imellem de identisk orienterede kanter af ved siden af hinanden beliggende bånd (2) i en båndgruppe (A, A1) af båndene (2).
- 30

Fig. 2

