A carrying pull-through cross bond

Technical Field

The invention relates to a carrying pull-through cross bond comprising of at least two parallel longitudinal straps and at least two transversal straps, which are arranged on one mutual plane, most frequently perpendicularly in such a way that they partly overlap each other and are attached to the carrier with connection sutures and linking tunnels are formed between the connection sutures.

Background Art

A number of linking elements are known, especially elements made of textile or leather that enable temporary fixation to a carrier. The carrier is e.g. a tactical jacket that is equipped with a linking element in the form of sutured straps that can be used to attach cases of auxiliary tools and equipment in such a way that they are accessible by hand, but at the same time the person only uses them occasionally. The purpose is to leave the hands free to carry out any activity and to allow occasional use of temporarily fixed tools attached to the clothes.

The means allowing temporary fixation of tools placed in a case are a Velcro fastener, strap bond, press fasteners or buttons with the use of which the object is fastened to the carrying part of the tactical jacket. A Velcro fastener represents a simple link, but in case of an incidentally acting higher force, especially at the margin of the connected surface, the bond may get released and the object may subsequently get lost. A similar advantage comprising in the ease of production and assembly may be manifested by bonds using press fasteners. However, this kind of connection has a principal disadvantage, similar to Velcro fastener connections, namely limited strength. A pull-through bond, connection of two objects with the use of a system of textile elements with the shape of straps attached to these objects manifests a much higher strength.

Interconnection of two objects with the use of a pull-through bond is known e.g. from the tactic jacket version used by the US Army, also described in the patent with the file no. US 5624606. This pull-through bond is characteristic by the fact that at both the connected objects the textile elements are only fastened in parallel over each other and this is why all the attached cases can only be fastened in one direction, which is a disadvantage of this type of a pull-through bond. For the attachment of a case to the jacket a pull-through strap is used that is part of the case.

This disadvantage was removed by tactical jackets of the German Army introduced in 1990s. This tactical jacket was equipped with two fields of textile elements in the shape of stripes, perpendicular to each other, so a cross bond was created. This cross bond enables longitudinal as well as transversal fastening of attached elements and their quick fixation with the use of a pull-through strap that is part of the attached objects through tunnels made of the textile elements. The textile elements are positioned in the jacket in such a way that their mutual distance is the same as their width and also the width of the pull-through straps while the textile elements are attached to the jacket with a double square-shaped cross suture; the overall area of the suture is a little smaller than the overlapping area of the textile elements. Thus, in the place of attachment there is no tunnel, so in this place the auxiliary objects cannot be fastened. This is the main disadvantage of this design as the density of possible connections of auxiliary objects to the jacket is low.

There is also the design of the Czech utility model no. 15505, which is another alternative of the previous design. The textile elements are positioned on the jacket in such a way that their mutual distance is higher than their width and also higher than the width of the pull-through straps while the textile elements are attached to the jacket with the use of a series of sutures perpendicular to the axis of the textile element while each row of sutures only passes through one textile element. A disadvantage of this design is still a low density of possible connections of auxiliary objects to the jacket.

Disclosure of the invention

The above mentioned disadvantages are removed to a considerable extent by a carrying pull-through bond in accordance with the invention that consists of at least two longitudinal straps and two transversal straps that are positioned on one mutual plane, most frequently perpendicularly to each other is such a way that they overlap each other and are attached to the carrier with connection sutures, where the principle is that the pull-through cross bond on the carrier consists of at least two longitudinal and at least two transversal straps, but in most cases the tactical jacket or backpack is equipped with this carrying pull-through bond all over the free area. Both the types of straps are arranged perpendicularly to each other in such a way that they overlap each other and in the places of overlapping, namely on the line of the sides of the lower covered strap they are connected to the carrier with a connection suture in such a way that both the covered straps are fixed to the carrier, which is e.g. a tactical jacket, on the above mentioned line of connection sutures. Between the line of connection sutures on the transversal strap in the place of overlapping of both the straps, but also in places where the straps do not overlap each other transversal linking tunnels are formed that are passable along the axis parallel to the axis of the connection sutures. Through these linking tunnels the pull-through straps of the auxiliary object can be inserted in the direction of the created connection sutures. These linking tunnels have the same width as the linking tunnels created on the longitudinal strap; however, the passability axis is 90°turned as compared to the passability axis of the linking tunnels of the transversal strap. The gap between parallel longitudinal straps and also the gap between parallel transversal straps has the same width as the width of the linking tunnels.

The advantages of the carrying pull-through cross bond as compared to known designs are as follows: The frequency of fixation lines of the bond with connection sutures is increased as the sutures are arranged symmetrically in the same distances of fixation and non-fixation of individual straps. The symmetry and the lowest possible distance of the connection sutures from each other provide the most beneficial condition for loading of the carrier after suspension of the auxiliary

object. The use of only one type of transversal connection sutures facilitates the production of the present carrying pull-through cross bond in comparison to known designs, which results in production costs reductions. A great advantage is sufficient fixation of the attached auxiliary object in the case, which is achieved with the use of the pull-through strap of the auxiliary object attached to this bond. Another advantage is the possibility of quick connection of the pull-through strap of the attached object. The sides of adjacent straps form a guiding groove with the same width as the width of the connection tunnel of the bond and this is why the insertion of the pull-through strap of the attached object is easy and quick and the fixation of the attached object is optimal.

Brief description of drawings

A sample embodiment of the carrying pull-through cross bond is shown in the attached drawings, where fig. 1 shows this bond attached to a carrier. Fig. 2 shows the use of the concerned carrying pull-through cross bond to attach an auxiliary product, which is an object in the form of a cartridge bag.

Modes for Carrying Out the Invention

The carrying pull-through cross bond is shown in fig. 1. It comprises of several rows of parallel longitudinal straps 2 and several rows of transversal straps 3, which are arranged perpendicularly to each other. Both the kinds of straps 2, 3 are fixed to the carrier 1 with fixation sutures 6 that form linking tunnels 7 on both the straps 2, 3. Fig. 2 shows the auxiliary object 4. This product is temporarily fixed to the carrier 1 with the use of the pull-through strap 5 of the auxiliary object 4.

As can be seen in the fig. 1 the connection sutures 6 are arranged on the lines of the sides of the lower covered longitudinal strap 2 in such a way that they hold both the longitudinal 2 and the transversal strap 3. The gap between the longitudinal straps 2 as well as the transversal strap 3 principally has the same width as the width of the straps 2, 3.

The carrying pull-through cross bond forms a part of the whole product that can be a carrier 1 in the form of a backpack, wide belt, additional lumbar belt, tactical jacket, working jacket, fishing, fire-brigade, road-service or other kinds of clothes and useful products to which it is suitable to fix another product, referred to as the auxiliary object 4 here. This auxiliary object 4 is usually a case equipped with a pull-through strap 5 of the auxiliary object 4 while the shape of the case is adapted to the product that is fixed inside. The auxiliary objects 4 that are temporarily fixed in the carrying pull-through cross bonds can be cartridge bags, a fighting knife, a pistol, a first-aid kit, various kinds of bags for food, maps and other items used in the above mentioned spheres of activities.

However, there are also products that do not have a case and represent the auxiliary object 4 adapted to be attached to the carrying pull-through cross bond by themselves. Such a product may be e.g. a torch or some types of transmitters.

The pull-through cross bond enables temporary fixation of the auxiliary object 4 either with the use of one pull-through strap 5 of the auxiliary object 4 e.g. in the case of a fighting knife not shown here or with the use of two or more pull-through straps 5 of the auxiliary object 4 as shown in fig. 2.

It is possible to fix the auxiliary object 4 to the carrying pull-through cross bond in more directions, mainly in the vertical and horizontal direction, but also in transversal directions. In the case of fixation on the vertical plane - this way most cartridge and bullet bags are attached - the pull-through strap 5 of the auxiliary object 4 is pulled through the linking tunnels 7 that are created in the transversal strap 3, parallel to the axis of the line of the connection sutures 6. In this case all the linking tunnels can be used that are provided by the transversal strap 3, i.e. both the linking tunnels 7 created by the transversal strap 3 overlapping the longitudinal straps 2 and the linking tunnels 7 created by the transversal strap 3 over the surface of the carrier 1.

Fixation of the auxiliary object 4 on the horizontal plane; this way a fighting knife may be fixed to a tactical jacket as the horizontal fixation of the knife is

advantageous for quick removal of the knife from the case. This type of attachment is not used very frequently, but in spite of this the carrying pull-through cross bond makes this way of fixation possible. In this case pull-through strap 5 of the auxiliary object 4 is inserted into the linking tunnels 7 created between the longitudinal strap 2 and the carrier 1.

The execution of temporary fixation of the auxiliary object 4 with the use of the pull-through strap 5 of the auxiliary object 4 is indicated in fig. 2. In this case six linking tunnels 7 of the cross bond and four tunnels created on the auxiliary object 4 are used. The width of the pull-through strap 5 of the auxiliary object 4 is usually 2 to 4 mm narrower than the width of the passage of the linking tunnels 7.

Industrial applicability

The invention of the carrying pull-through cross bond attached to a carrier forms a means for creation of a comfortable versatile carrying element that can be used especially in the form of professional clothes of military armed forces, fire brigades, water, mining and mountain rescue teams, but it can also be used for the creation of leisure-time products where the design is applied on a travelling or mountaineering backpack, on a fishing bag or normal working clothes or piece of luggage.

CLAIMS

A carrying pull-through cross bond comprising of at least two parallel longitudinal straps (2) and at least two transversal straps (3), which are arranged on one mutual plane, most frequently perpendicularly in such a way that they partly overlap each other and are attached to the carrier (1) with connection sutures (6) and linking tunnels (7) are formed between the connection sutures (6), **characterized in** that the connection sutures (6) are arranged on the lines of the sides of the lower covered longitudinal strap (2) in such a way that they hold both the longitudinal (2) and the transversal strap (3) while the gap between the longitudinal straps (2) as well as the transversal strap (3) principally has the same width as the width of the straps (2, 3).