July 26, 1927. 1,636,712

E. E. PECK

SUSPENDER ATTACHMENT

Filed Sept. 24, 1925

Fig. 1.

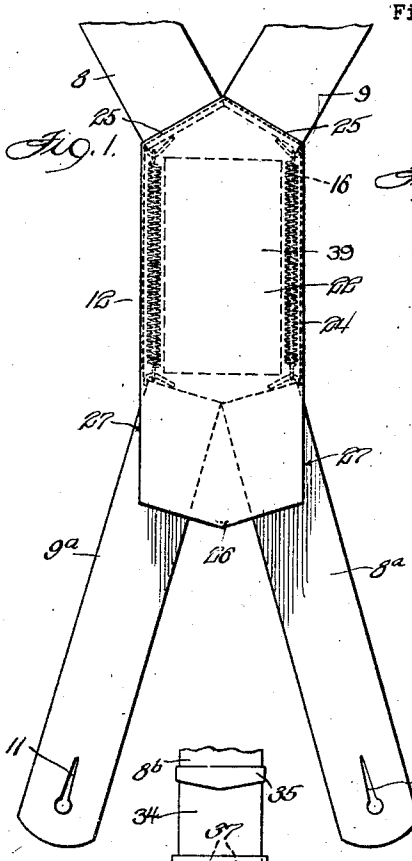


Fig. 2.

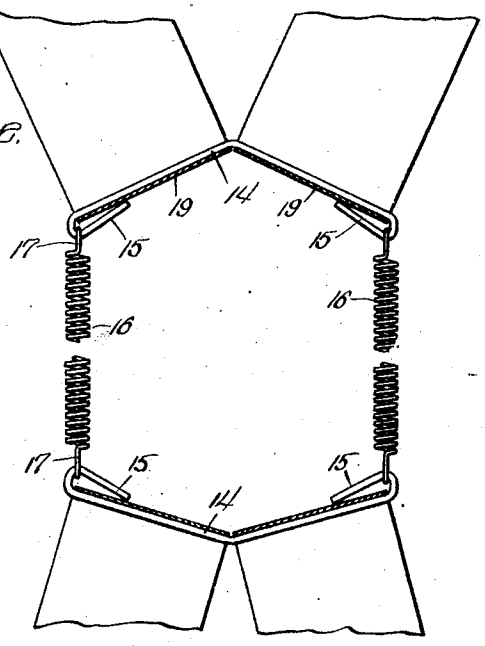


Fig. 5.

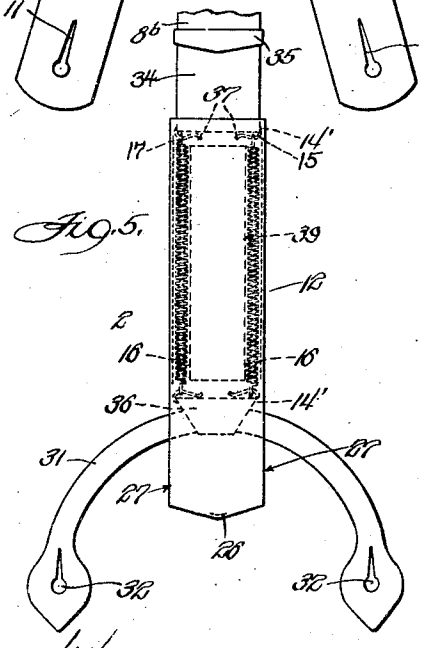


Fig. 4.

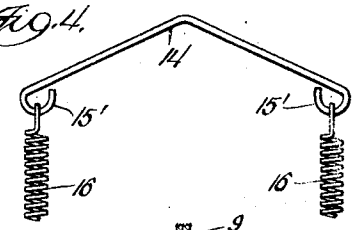
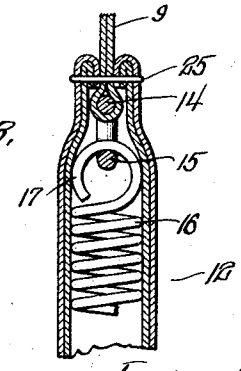


Fig. 3.



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UNITED STATES PATENT OFFICE.

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SUSPENDER ATTACHMENT.

Application filed September 24, 1925. Serial No. 58,225.

My invention relates to suspender attachments and has particular reference to attachments or inserts adapted to be incorporated in suspender straps for giving the suspenders a large range of elasticity, and for providing a suspender which will have greatly increased life. While the principal use of a device such as I shall herein disclose is confined primarily to suspenders, I have drawn some of the appended claims to cover more extensive adaptations of the invention; for example in any type of garment where the additional elasticity afforded by the device would be of advantage, such as in the shoulder straps of overalls, etc.

One of the objects of the present invention is to provide a device of this type utilizing helical wire springs for giving the desired elasticity. Such springs give a much larger range of elasticity than does elastic webbing, and these springs never deteriorate nor fatigue with age such as is the case with elastic webbing.

A further object of the invention is to provide improved means for limiting the extension of the elastic means, so that the latter cannot become broken or strained through undue stress accidentally imposed thereon.

Another object is to provide improved means for enclosing and protecting the elastic means.

And a still further object of the invention is to provide improved means for connecting the elastic or extensible means to the adjacent portions of the suspender or garment.

Referring to the accompanying drawing wherein I have illustrated a preferred embodiment of my invention:

Figure 1 is a fragmentary elevational view of the back portion of a pair of suspenders, illustrating my invention embodied in the strap portions thereof,

Figure 2 is a view on a larger scale illustrating the device with the sheath or cover removed and the strap loops in section,

Figure 3 is a longitudinal sectional view through the extensible means showing the placing of the sheath or cover over the helical springs,

Figure 4 is a fragmentary view illustrating a modified form of transverse fastening member, and

Figure 5 is a fragmentary elevational view illustrating my invention embodied in the front strap portions of a pair of suspenders.

Referring first to the embodiment shown in Figures 1 and 2, the rear portion of a pair of suspenders is represented by the shoulder straps 8—9. In the ordinary construction of suspenders these straps generally cross in the rear, at which point of crossing they are usually stitched together, and the lower end portions 8^a and 9^a extend down to have fastening with buttons on the tops of the trousers through the button holes 11—11 in the ends of these lower strap portions 8^a—9^a. In the embodiment now considered, I insert the present extensible or elastic attachment 12 in the suspenders between the shoulder straps 8—9 and their lower depending end portions 8^a—9^a.

This extensible attachment or insert comprises two transverse attaching members 14—14 to which the ends of the strap portions are secured. Each of these attaching members 14 preferably consists of a length of wire bent into the obtuse V-shaped form shown in Figure 2. The inclination of the sloping side portions of these wire connecting members is proportioned so that they will accord with the inclination of the strap portions 8—9 and 8^a—9^a. Formed in the ends of these wire connecting members are eyes or loops 15. It will be noted that the outer portion of each eye or loop adjacent the outer end of the wire connecting member, affords a relatively deep pocket, and that the inner end of the wire lies in closer proximity to the sloping side portions.

Connected between the ends of these transverse attaching members 14 are two helical springs, 16—16, these springs having eyes 17 which are slipped into engagement with the loops or eyes 15 of the wire attaching members. These springs may be of any length and of any gauge wire suitable to the requirements of the particular use. As illustrative of a preferred construction which has given good results, I construct these springs of phosphor bronze wire of approximately number twenty-two gauge and having a length of approximately three inches and an outside diameter of five thirty-seconds of an inch. This phosphor bronze wire is non-rustable and substantially non-corrosive and is therefore advantageous, but it will be apparent that other materials may be employed.

After the ends of the springs have been

connected to the loops 15 the ends of the strap portions 8—9 and 8^a—9^a are passed around the sloping side portions of the wire connecting members 14, with the outer edges of the straps engaging in the loops 15. The spacing between the end of the loop and the main body portion of the wire 14 is just of sufficient size to receive the webbing constituting the strap portions 8—9 and 8^a—9^a. The subsequent placing of the looped ends 19 of the strap portions in these loops 15 substantially closes the open ends of the loops, so that at no time thereafter can the spring eyes accidentally disengage themselves from the loops 15.

After the transverse connecting members 14 and springs 16 have been thus secured to the strap portions of the suspenders, a sheath or cover 22 in slipped over the lower strap portions 8^a—9^a and positioned over the springs and connecting members 14. This sheath or cover is illustrated in section in Figure 3 and comprises opposite side panels which are stitched together along their lateral edges, as indicated at 24 (Figure 1) to form a flat sheath. In order that this sheath can be slipped over the lower ends of the suspenders as above described, the ends of the sheath are left unstitched, and the lateral stitching 24 is only carried down to the point illustrated in Figure 1. The upper open end of the sheath is then threaded or slipped over the suspender portions 8^a—9^a, and after the sheath is in position this open upper end is stitched directly to the upper strap portions of the suspenders, as indicated at 25 in Figure 1. At this time the open lower end of the sheath is also tacked or stitched together at the central point indicated at 26 leaving the two side openings 27 for the strap portions 8^a—9^a to pass out of the sheath and to permit vertical movement of the lower connecting member 14 in the sheath under the extension of the springs 16. This lower point of tacking or stitching 26 affords a limiting stop which will be engaged by the center of the lower connecting member 14 when the springs 16 have been extended a pre-determined distance. This limiting means will prevent breaking or damaging of the springs from any undue stress imposed on the suspender straps.

Each side panel of the sheath may consist of a single ply of cloth with its edges turned in, or it may consist of two or more plies of any suitable fabric. A coarse suitable cloth such as duck may be used next to the springs, and a finer ornamented cloth may be used for the outside covering. Another practice which I find advantageous to keep the sheath 22 stiff and unwrinkled is to make one or more of these plies of hair cloth or other suitable material, which will have sufficient stiffness to prevent the sheath from wrinkling up under the movements of the suspenders on the wearer.

Figure 4 illustrates a modification wherein the ends of the transverse connecting members 14 are formed with eyes or loops 15′ of semi-circular form instead of the relatively long flattened form shown in Figure 2. This semi-circular form of loop will bring the outer sides of the springs 16 almost directly below the outer ends of the transverse connecting members 14. In both Figures 2 and 4 I have shown the springs 16 extending parallel to each other, as this is the preferred manner of connecting the springs, but the springs may be crossed between the connecting members 14 if desired.

In Figure 5 I have illustrated my invention embodied in the front strap portions of a pair of suspenders. One of such front strap portions is indicated at 8^b, this strap portion, in the conventional suspender, usually having adjustable connection with a semi-circular leather buttoning member 31, having button holes 32 in its lower ends for engaging over buttons in the front of the trousers. Instead of leather, this buttoning member may be made of non-elastic webbing. I interpose one of my improved extensible attachments or inserts 12 between each of these front suspender straps 8^b and its respective buttoning member 31. In this form the transverse connecting members 14′ consist of straight lengths of wire having eyes or loops 15 turned over at their ends similarly to Figure 2. The strap portion 8^b is passed around the upper connecting wire 14′ to form a loop 34, this loop having a conventional buckle 35 at its end to permit the adjustment of the length of the strap 8^b by varying the length of the loop which is passed around the upper connecting wire 14′. The lower connecting member 14′ is passed through a tube 36, generally constructed of sheet metal, and through the lower portion of this tube passes the buttoning member 31. The engagement of the strap portion 8^b in the loops or eyes 15 at the upper end, and the engagement of the tubular member 36 in the eyes 15 at the lower end substantially fills the open ends of these eyes and thus prevents disengagement of the springs, in the same manner described of Figure 2. The extreme ends of the upper loops or eyes 15 are turned downwardly as indicated at 37 to avoid tearing or catching in the fabric of the loop 34 as this loop is being adjusted around the transverse connecting member 14′.

The sheath 22 is constructed similarly to the sheath before described except, in the present instance, after the open upper end of the sheath has been threaded or slipped over the springs this upper end is tacked or stitched to the ends of the eyes or loops 37, or to the eyes 17 in the ends of the spring,

so that the fastening of this upper end of the sheath will not interfere with the adjustments of the loop 34 around the upper connecting member 14'. The lower end of the sheath has the long lateral openings 27 out of which extend the ends of the leather buttoning member 31, and which openings permit the extensible movement of the springs. The stitching or tacking 26 between the two side portions of the sheath at its lower end limits the downward extension of the springs in the same manner decribed of Figure 1. One or more plies of this sheath may also be constructed of hair cloth to maintain a desired stiffness if desired.

In the embodiment shown in Figure 1 or in the embodiment shown in Figure 5 a pad 39 may be inserted between the two side portions of the sheath and between the two springs 16—16 to fill the opening between these springs. Such a pad would be of a thickness approximately equal to the diameter of the springs and would serve to keep the intermediate area of the sheath smooth and flush with the outer edges thereof thus preserving a neat appearance of the sheath.

It will be obvious that the springs 16 will have a life far exceeding that obtainable from any elastic fabric webbing. Furthermore these springs will give a range of extension exceeding that of any elastic webbing, particularly after the webbing has aged somewhat. Hence, by the use of this extensible insert or attachment 12 I am enabled to dispense entirely with elastic webbing in a suspender or garment of this type and to use plain ordinary webbing, leather or any other material, thereby obtaining a suspender or garment which will have a much longer life and which will give a greater sense of comfort to the wearer than is obtainable with suspenders as now made. The use of two springs is desirable in each of these inserts or attachments for giving a desired balance to the strap portions in the movement of the shoulders, but I consider it within the broad purview of my invention to utilize a single helical wire spring. The enclosing of these springs or spring in the sheath 22 removes any obtrusive appearance of the metallic springs and this sheath will also have a cushioning or padding quality preventing all possibility of the springs chafing the wearer. The outer side of the sheath 22 may receive any decorative effect desired.

Having thus described my invention what I claim as new and desire to secure by Letters Patent of the United States is:

1. In a device of the class described, the combination of two shoulder straps, an inverted V-shaped wire connecting member, said shoulder straps being looped about the sloping side portions of said wire connecting member, eyes formed in the outer ends of said wire connecting member, helical springs having their upper ends hooked into said eyes and extending downwardly therefrom in substantially parallel relation, a pair of fastening extensions for fastening to a garment, a second connecting member secured to said fastening extensions, said helical springs being connected at their lower ends to said second connecting member, a sheath enclosing said springs and comprising front and rear plies of material stitched at their upper ends to said shoulder straps and stitched along their lateral edges through a part of their length, the unstitched lower ends of said plies defining long side openings therebetween through which said fastening extensions pass, and means connecting the front and rear plies of said sheath between said fastening extensions at the lower end of said sheath for limiting the extensible movement of said springs.

2. In a device of the class described, the combination of an upper transversely extending wire attaching member having loops bent downwardly from its ends, a lower transversely extending wire attaching member having loops bent upwardly from its ends, two helical coil springs having eyes at their upper and lower ends, the eyes at the upper ends of said springs being connected with the loops of said upper attaching member, and the eyes at the lower ends of said springs being connected with the loops of said lower attaching member, shoulder strap means engaging with said upper attaching member, fastening extension means connecting with said lower attaching member, and a sheath enclosing said springs and comprising front and rear plies of pliable material stitched along their lateral edges through a part of their length, the unstitched lower ends of said plies defining side openings in the sheath through which passes said fastening extension means.

3. In a device of the class described, the combination of an upper inverted V-shaped wire attaching member having loops bent downwardly from its ends, a lower V-shaped wire attaching member having loops bent upwardly from its ends, two helical coil springs having eyes at their upper and lower ends, the eyes at the upper ends of said springs being connected with the loops of said upper attaching member, and the eyes at the lower ends of said springs being connected with the loops of said lower attaching member, shoulder strap means engaging with said upper attaching member, fastening extension means connecting with said lower attaching member, a sheath enclosing said springs and comprising front and rear plies of material stitched along their lateral edges through a part of their length, the unstitched lower ends of said plies defining side openings therebetween through which

pass said fastening extension means, stitching connecting the front and rear plies of said sheath at the lower end thereof for limiting the extensible movement of said springs, and a pad interposed between said springs within said sheath.

4. In a device of the class described, the combination of an upper inverted V-shaped wire attaching member having loops bent downwardly from its ends, a lower V-shaped wire attaching member having loops bent upwardly from its ends, two helical coil springs having eyes at their upper and lower ends, the eyes at the upper ends of said springs being connected with the loops of said upper attaching member, and the eyes at the lower ends of said springs being connected with the loops of said lower attaching member, shoulder strap means engaging with said upper attaching member, fastening extension means connecting with said lower attaching member, and a sheath enclosing said springs, said sheath comprising a ply of hair-cloth for stiffening the sheath.

5. In a device of the class described, the combination of an upper inverted V-shaped wire attaching member having loops bent downwardly from its ends, a lower V-shaped wire attaching member having loops bent upwardly from its ends, two helical coil springs having eyes at their upper and lower ends, the eyes at the upper ends of said springs being connected with the loops of said upper attaching member, and the eyes at the lower ends of said springs being connected with the loops of said lower attaching member, shoulder strap means engaging with said upper attaching member, fastening extension means connecting with said lower attaching member, the openings into the loops of said wire attaching members being closed after hooking the eyes of the springs therein by passing said shoulder strap means and said fastening extension means through said eyes, the thickness of each of said last named means substantially closing said openings, and a sheath of pliable material secured at its upper end to said shoulder strap means and enclosing said springs.

6. In a device of the class described, the combination of an upper transversely extending metallic attaching member having loops at its ends, a lower transversely extending metallic attaching member having loops at its ends, two helical coil springs having eyes at their upper and lower ends, the eyes at the upper ends of said springs being connected with the loops of said upper attaching member, and the eyes at the lower ends of said springs being connected with the loops of said lower attaching member with the springs extending substantially parallel between said members, shoulder strap means engaging with said upper attaching member, fastening extension means connecting with said lower attaching member, and a sheath of pliable material enclosing said springs and secured to one of said means.

In witness whereof, I hereunto subscribe my name this 17th day of September, 1925.

ELMER E. PECK.