Feb. 11, 1936. S. R. HICKOK 2,030,791

BRACE

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Fig. 1.

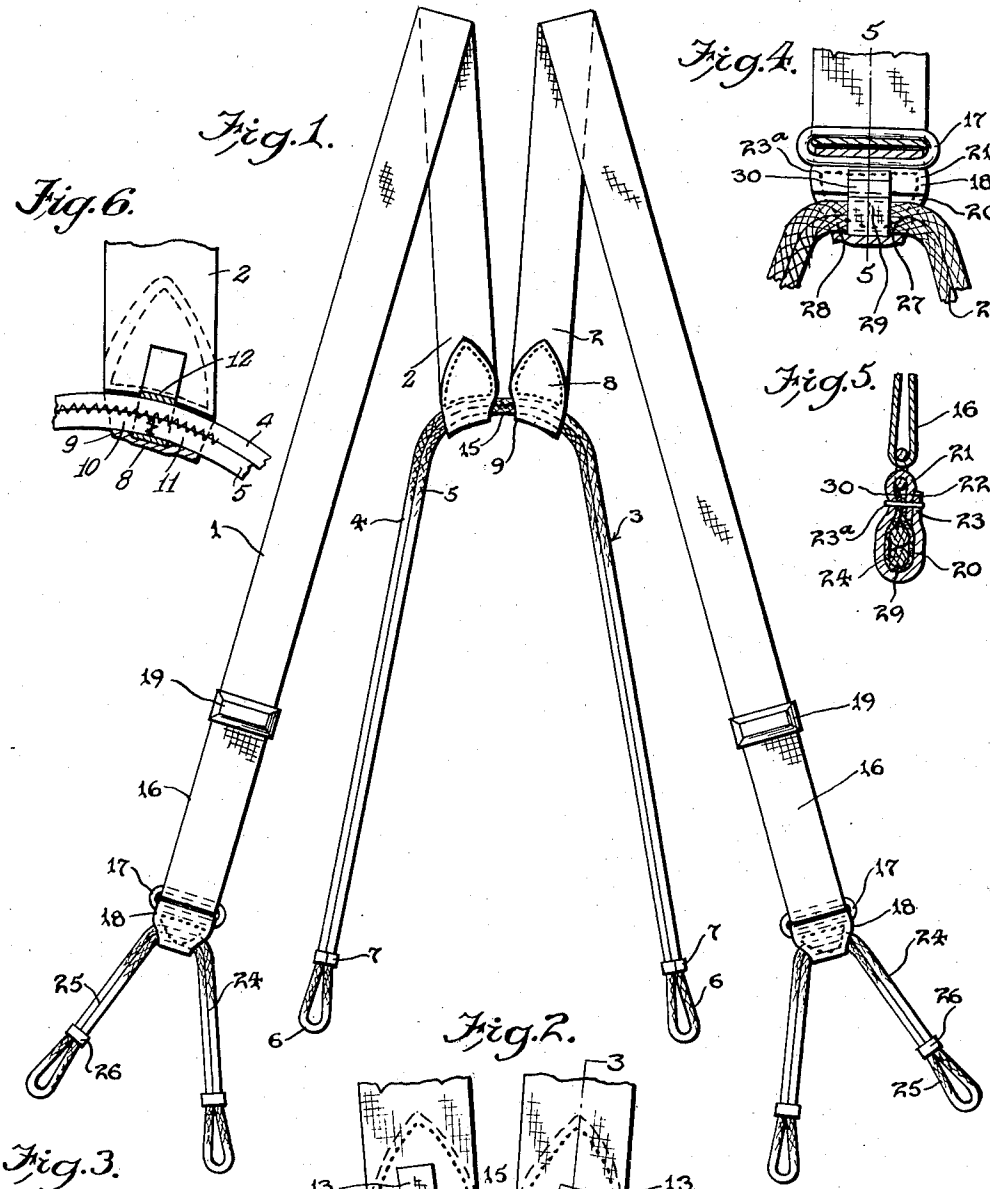


Fig. 4.

Fig. 6.

Fig. 5.

Fig. 2.

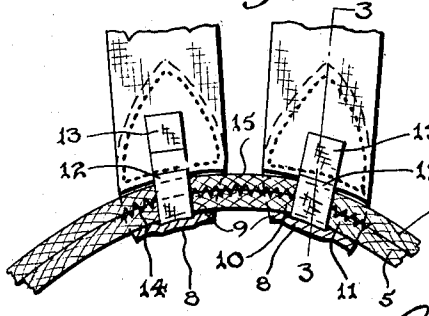
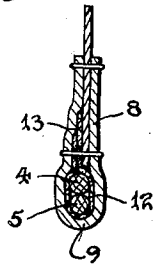


Fig. 3.



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BRACE

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12 Claims. (Cl. 241—19)

The invention relates to improvements in braces or suspenders.

The object of the present invention is to improve the construction of braces or suspenders, more particularly the construction of the back of the brace and to remove therefrom a maximum amount of objectionable construction located in the region of the spinal column of the wearer and to provide a brace having a strong and light weight inelastic cord attached to and connecting the rear terminals of a pair of shoulder straps of elastic webbing, the terminal portions of the cord element which connects the rear terminals of the shoulder straps being extended therefrom and forming back suspender ends for the brace.

A further object of the invention is to provide a practical brace of this character adapted to permit freedom of movement of the wearer without producing excessive pressure on the spinal column and at the same time reduce to a minimum the area of contact of the brace with the spinal column.

Another object of the invention is to equip the brace with a rear flexible shoulder strap connecting member consisting of a single piece of the said strong light weight cord and forming both a shoulder strap connecting portion and back suspender ends, and it is also an object of the invention to enable a substantially similar cord member to be employed in the formation of the front suspender ends.

With these and other objects in view, the invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawing and pointed out in the claims hereto appended, it being understood that various changes in the form, proportions and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawing:

Figure 1 is an elevation of a brace constructed in accordance with this invention.

Figure 2 is an enlarged detail sectional view illustrating the manner of securing the flexible cord member to the rear ends of the shoulder straps.

Figure 3 is a detail sectional view on the line 3—3 of Figure 2.

Figure 4 is a detail view partly in section illustrating the manner of attaching the front suspender ends to the shoulder straps.

Figure 5 is a detail sectional view on the line 5—5 of Figure 4.

Figure 6 is a detail sectional view showing the ends of the cord of the flexible member secured together and fastened to the rear end of one of the shoulder straps.

The accompanying drawing illustrates one embodiment of the invention, the scope of which is defined in the appended claims.

The brace of the present invention comprises in its construction a pair of shoulder straps 1 constructed of elastic webbing or other suitable material and arranged in spaced relation throughout their entire length, the rear ends 2 of the shoulder straps being spaced apart and secured to a continuous light flexible member 3 consisting of a single continuous piece of strong light weight cord doubled to form two strands 4 and 5. The doubling of the cord to form the two strands 4 and 5 provides button engaging loops 6 at the terminals of the flexible member 3 and the strands are secured together at the inner or upper ends of the loops 6 by metal bands 7 which are clamped around the strands of the flexible member 3.

The rear ends 2 of the back straps are provided with tabs 8 of leather or other suitable material which is folded to embrace the rear ends of the shoulder straps and which are cut to provide bias loops 9 through which the flexible member 3 passes. The transversely disposed bias loops which incline downwardly and outwardly are formed by the folding or bending of the material of the tabs 8 and the extension of the same beyond the rear terminals of the shoulder straps as illustrated in Figure 2 of the drawing. The sides or flaps of the tabs are stitched or otherwise secured to the rear ends of the shoulder straps and the terminals 10 and 11 of the inelastic cord which are arranged within the bias loop 9 of one of the tabs may be secured to the same in any desired manner. A convenient and practical way of accomplishing this result is effected by wrapping a strip 12 of adhesive tape around the strands and stitching the same to the strands and extending one end of the adhesive tape beyond the strands to form a flap 13 and securing the said flap 13 by stitching and by the adhesive of the tape between the rear end of one of the back straps and the adjacent portion of the tab thereof.

The strands are secured together by stitching 14 at the central portion of the flexible cord member to provide an intermediate connecting portion 15 which extends across the space be-

tween the rear ends of the shoulder straps and which also lies within the bias loops of the tabs thereof. The intermediate connecting portion of the flexible cord member spaces the rear ends of the shoulder straps and extends across the spinal column of the wearer and is the only portion of the brace which actually contacts with the spinal column. By this construction and arrangement only a small portion of the brace actually contacts with the spinal column and great freedom of movement is permitted by the arrangement.

The front ends of the shoulder straps are doubled to form loops 16 to receive links 17 which connect tabs 18 with the shoulder straps. The terminal portions of the elastic webbing at the front ends of the shoulder straps are adjustable to vary the effective length of the shoulder straps and are equipped with brace buckles 19 of any suitable construction. The tabs 18, which are preferably tapered downwardly, may be constructed of a single piece of leather or any other suitable material which is doubled to form a front suspender end receiving loop 20 and which has the rear side of the loop 20 folded on itself at the top of the tab to provide a loop or fold 21 to receive the link 17. The terminals 22 and 23 of the flexible piece of leather or other material of which the front tab is constructed are secured together and to the rear portion of the tab by any suitable means, preferably by a line of stitching 23a.

Each front suspender end 24 consists of a single continuous piece of light strong cord of the same material of which the rear flexible cord member is constructed and the cord is doubled to form two strands and to provide button engaging loops 25 at the terminals of the front suspender ends. The strands are secured together at the inner or upper ends of the loops 25 by metal bands 26 which are clamped around the strands. The terminals 27 and 28 of the cord are secured together within the front tab 18 preferably by means of a strip 29 of adhesive tape which is wrapped around the strands and which is stitched to the same, one end of the tape being extended beyond the strands to form a tab 30 which is secured by adhesive material to the tab interiorly thereof and also by the line of stitching 23a. Any other suitable means may, of course, be employed for securing together the cord of the front suspender ends and for rigidly securing the front suspender ends in the tabs or hanger members 18.

What is claimed is:

1. A brace comprising shoulder straps spaced apart throughout their entire length, and a continuous light flexible member extending across the space between and secured to the rear terminals of the shoulder straps and extending from the same to form rear suspender ends connected only at the top directly to the rear ends of the shoulder straps, said flexible member consisting of a single continuous piece of cord doubled to form two strands and to provide button engaging loops at the ends of the flexible member, the strands of the cord being contiguous throughout the entire length of the member between the said button engaging loops.

2. A brace comprising shoulder straps spaced apart throughout their entire length, and a continuous light flexible member extending across the space between and connecting the rear terminals of the shoulder straps and consisting of a single continuous piece of cord doubled to form two strands and to provide button engaging loops at the ends of the flexible member, the terminals of the cord being secured together and fastened to the rear end of one of the shoulder straps.

3. A brace comprising shoulder straps spaced apart throughout their entire length, and a continuous light flexible member extending across the space between and connecting the rear terminals of the shoulder straps and consisting of a single continuous piece of cord doubled to form two strands and to provide button engaging loops at the ends of the flexible member, the strands of the flexible member being secured together at the central portion of the flexible member to provide a stiffened transverse connecting portion extending across the rear terminals of the shoulder straps and across the space between the same.

4. A brace comprising shoulder straps spaced apart throughout their entire length, and a continuous light flexible member extending across the space between and connecting the rear terminals of the shoulder straps and consisting of a single continuous piece of cord doubled to form two strands and to provide button engaging loops at the ends of the flexible member, the terminals of the cord being located at the rear end of one of the shoulder straps and a strip of adhesive tape wrapped around the strands at the said ends of the cord and secured to the strands and having an extended flap portion connected with the adjacent shoulder strap interiorly of the brace.

5. A brace comprising shoulder straps spaced apart throughout their entire length and provided at their rear ends with tabs consisting of pieces of material folded over and embracing and secured to the rear ends of the shoulder straps, the pieces being cut and extended beyond the said rear ends of the shoulder straps to form loops, each loop being continuously biased from the inner side edges of the tab to the outer side edges of the same, said loops extending downwardly and outwardly away from each other, and a continuous flexible member extending across the space between the rear ends of the shoulder straps and passing through and permanently secured to the bias loops to prevent movement of the flexible member within the loops relative to the shoulder straps, said flexible member being extended beyond the loops to form rear suspender ends.

6. A brace comprising shoulder straps spaced apart throughout their entire length and provided at their rear ends with tabs consisting of pieces of material folded over and embracing and secured to the rear ends of the shoulder straps, the pieces being cut and extended beyond the said rear ends of the shoulder straps to form bias loops extending downwardly and outwardly away from each other, and a continuous flexible member extending across the space between the rear ends of the shoulder straps and passing through the bias loops and extending beyond the same to form rear suspender ends, said flexible member consisting of a single continuous cord having its terminals secured together within the bias loop of one of the tabs.

7. A brace comprising shoulder straps spaced apart throughout their entire length and provided at their rear ends with tabs consisting of pieces of material folded over and embracing and secured to the rear ends of the shoulder straps, the pieces being cut and extended beyond the said rear ends of the shoulder straps to form bias loops extending downwardly and outwardly away from each other, and a continuous flexible member doubled to form two strands and extending across the space between the rear ends of the shoulder straps and passing through the

bias loops with its ends located within one of the loops, said flexible member being extended beyond the loops to form rear suspender ends, and consisting of a single continuous cord and a strip of adhesive tape wrapped around the strands at the terminals of the cord and arranged within the contiguous loop and secured to the said strands and having one end extended beyond the strands and secured between one side of the adjacent tab and the rear end of the contiguous shoulder strap.

8. A brace having a shoulder strap provided with a front suspender end consisting of a single continuous cord doubled to form two strands and to provide button engaging loops, and a strip of material wrapped around the terminals of the cord and secured to the same and to the brace.

9. A brace comprising a shoulder strap provided at the front end with a tab forming a loop, and a front suspender end consisting of a single piece of cord doubled to provide two strands and to form button engaging loops, the terminals of the cord being arranged within the said tab and a strip of material wrapped around the strands at the terminals of the cord and secured to the same and having an extended end secured to the loop beyond the cord.

10. A brace comprising a shoulder strap provided at the front end with a link member, a tab of flexible material doubled to form a lower loop and having one side thereof folded on itself to provide an upper loop, the latter being linked into the link member and the terminals of the flexible material being secured together, and a front suspender end extending through the lower loop and consisting of a single continuous cord doubled to form two strands, the terminals of the cord being secured within the lower loop.

11. A brace comprising a shoulder strap provided at the front end with a link member, a tab of flexible material doubled to form a lower loop and having one side thereof folded on itself to provide an upper loop, the latter being linked into the link member and the terminals of the flexible material being secured together, a front suspender end extending through the lower loop and consisting of a single cord doubled to provide a plurality of strands and having its terminals arranged within the lower loop, and a strip of fabric wrapped around the strands at the said terminals and secured to the same and having an extended flap portion secured to the tab by the fastener means which secure the ends of the flexible material of the tab together.

12. A brace comprising shoulder straps of webbing spaced apart throughout their entire length and provided at their rear ends with loops, and a continuous light flexible member composed of two sides and a connecting top portion, said connecting portion extending across the space between the rear terminals of the shoulder straps and passing through said loops and permanently attached to the same to prevent relative lateral movement of the shoulder straps on said flexible member, the side portions of the flexible member forming downwardly extending rear suspender ends, which are free from each other from said loops to their lower terminals.

STEPHEN R. HICKOK.