

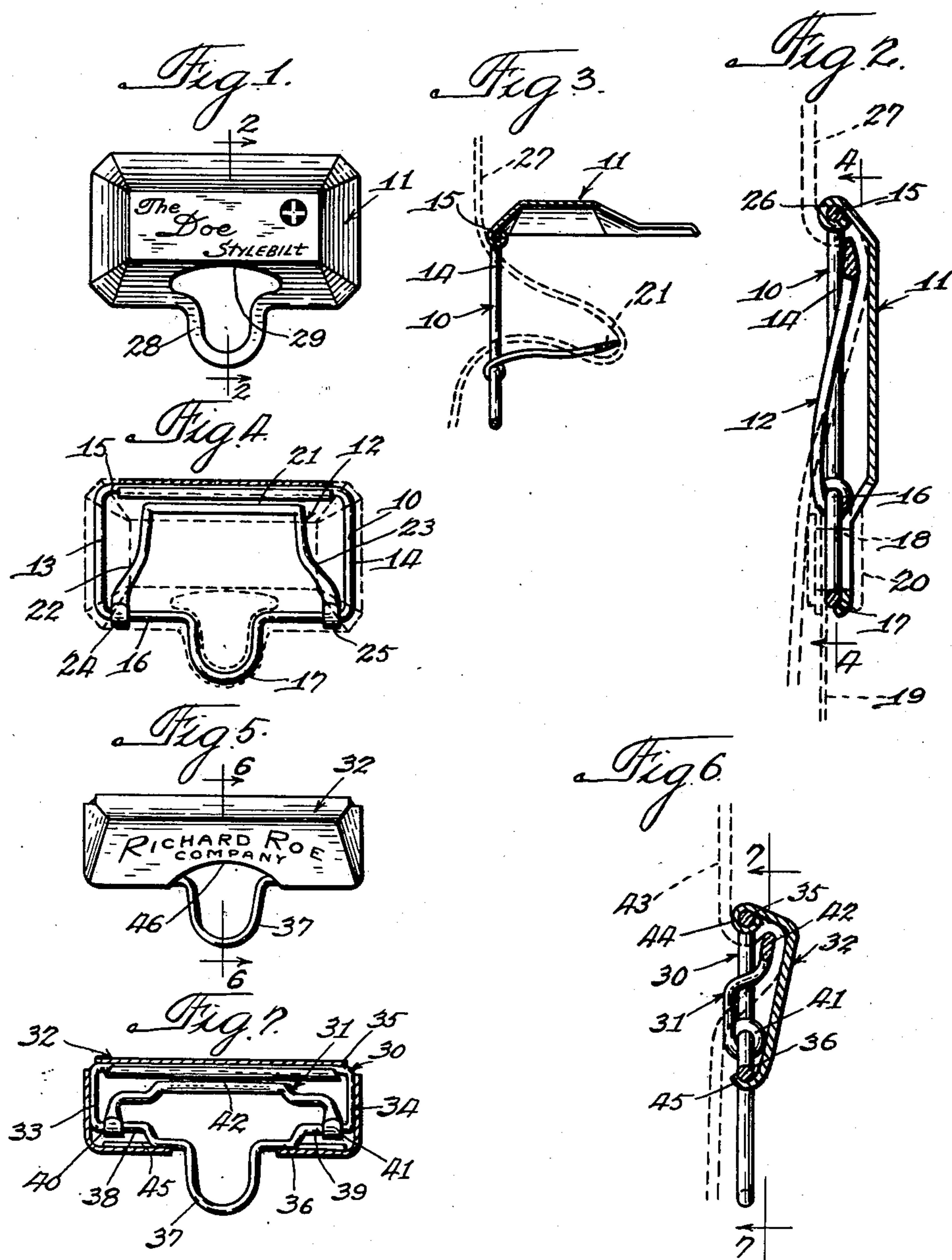
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BUCKLE

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BUCKLE

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This invention relates to a buckle and has special reference to a buckle adapted to be adjustably associated with straps, bands, and the like, for the support of garments or other objects on the person.

More particularly, this invention relates to a buckle comprising a frame having spaced side bars and spaced cross bars connecting the side bars with a clamping bar subtending in close proximity a substantial portion of the length of one cross bar of the frame for gripping a strap threaded therebetween and being pivotally supported by the other cross bar of the frame, there being a second frame pivotally mounted on the gripping bar of the first frame to overlie the first frame and having a strap-engaging portion for co-operation with the clamping bar to grip the strap therebetween.

The present invention contemplates the adoption of the above construction for use with various types of objects particularly about the person. The drawing shows a buckle which is adapted particularly for use in connection with a shoulder strap of an overall, the strap being threaded between a clamping bar pivotally mounted on one frame and a co-operating cross bar of that frame and thereafter between the clamping bar and a second frame which is pivotally mounted on the gripping bar of the first frame with the free end of the strap pointing downwardly. It is readily apparent, of course, that various other uses could be mentioned in connection with buckles and fasteners generally of the type adapted to be adjustably associated with straps and that this invention, therefore, is not to be limited to the specific use illustrated.

In a buckle of the above noted type it is highly desirable to provide for the utmost simplicity in the threading of the strap through the buckle, to provide an ease in the adjustment of the strap through the buckle when in use on the wearer, and to provide that the free end of the strap points downwardly. In the present invention the arrangement and nature of the pivotally mounted frames and clamping bar, the clamping bar and one frame being pivoted on the other of the frames in a direction inwardly toward each other, co-operate to accomplish the above desired results. Further, the construction and arrangement of the elements of the buckle are such as to minimize the weight and expense from the standpoint of the material used.

In both embodiments of the invention shown a very positive grip on the strap is effected because of the tortuous path in which the strap

is threaded and the double gripping of the strap between the pivoted members thereof. The pivotally mounted frame and the pivotally mounted clamping bar open to such an extent that the strap is very readily threaded therebetween in a proper manner. After the strap has been threaded through the pivotally mounted members in an open condition the elements are pivoted into a double clamping engagement of the strap whereby not only is the strap positively clamped in position but the tortuous path in which the strap is threaded normally tends also to resist relative movement between the strap and the buckle.

The elements of the buckle are formed of such material as to reduce to a minimum the expense of manufacture thereof and to provide an efficient structure which will be attractive in appearance. The main frame on which the other elements are pivotally connected comprises a wire loop of a single piece of material. The clamping bar is also preferably formed of a U-shaped wire. Such construction reduces to a minimum the cost of manufacture of a buckle of this type. The overlying frame is preferably formed of a comparatively thin spring material into which has been imparted high physical properties by heat treatment after all forming operations involved have been completed. The formation of the overlying frame of sheet material which may be stamped into designs of pleasing appearances produces the necessary attractiveness for commercial use in high grade merchandise. However, by reason of its appearance and, further, by reason of the cost of construction thereof the device may be also employed on merchandise of any quality.

One of the objects of this invention is to provide a buckle of the character indicated above in which it is comparatively easy to thread a strap, in which it is easy to adjust the strap after it is threaded therein and while on a wearer, in which a loose end of the strap points downwardly when in use on the wearer, and which is of minimum weight to be less expensive in packing, freight, storage, and from the standpoint of material used in the making of the buckle.

Another object of this invention is to provide a buckle of the type above noted in which a gripping bar and a frame are pivotally mounted on opposed sides of another frame to swing inwardly in a direction toward each other for effecting a double clamping of the strap therebetween, the opening of the pivotally mounted

elements affording a maximum amount of room for readily receiving a strap threaded there-through.

It is also an object of this invention to provide a buckle of the hereinabove noted type in which the elements thereof are formed of different materials consistent with inexpensive production and yet affording an appearance and utility which is desirable in keeping with quality merchandise.

Other objects and advantages of this invention will hereinafter be more particularly pointed out and, for a more complete understanding of the characteristic features of this invention, reference may now be had to the following description when taken together with the accompanying drawing, in which latter:

Figure 1 is a front elevational view of a buckle embodying the features of this invention;

Fig. 2 is an enlarged central sectional view taken on the line 2—2 of Fig. 1, a strap being shown in dotted lines as being clamped in engagement between the elements of the buckle shown in a normally operative position;

Fig. 3 is a reduced view similar to Fig. 2 showing the elements of the buckle in an open condition with the strap shown loosely threaded there-through in dotted lines;

Fig. 4 is a reduced sectional view partly in elevation taken on the line 4—4 of Fig. 2;

Fig. 5 is a front elevational view of a modified buckle construction embodying the features of this invention;

Fig. 6 is an enlarged central sectional view taken on the line 6—6 of Fig. 5, a strap being shown in dotted lines as being clamped in position by the elements of the buckle shown in a normally operative position; and

Fig. 7 is a reduced sectional view partly in elevation taken on the line 7—7 of Fig. 6.

Referring now to the drawing, and more particularly to Figs. 1 to 4, inclusive, thereof, one form of buckle embodying the features of this invention is shown as comprising a frame 10 having a frame 11 and a clamping bar 12 pivotally engaged therewith. The frame 10 is preferably formed of a single continuous length of wire soldered, spot welded, or otherwise secured together at the ends thereof forming spaced side bars 13 and 14 connected together by spaced cross bars 15 and 16. The cross bar 16 is formed with a loop 17 opening into the interior of the frame for engaging the reduced shank 18 of a button attached to a garment 19 to be supported. The shank 18 of the button is substantially the width of the opening of the loop 17 and the enlarged head 20 of the button prevents the button from disengagement with the loop, the button being greater in diameter than the width of the opening of the loop.

The clamping bar 12 is also preferably formed of wire of substantially U-shape having an intermediate gripping portion 21 with end portions forming arms 22 and 23 extending angularly therefrom for pivotal engagement with the cross bar 16 of the frame 10. The free ends of the arms 22 and 23 are looped to provide bearings 24 and 25, respectively, in which the cross bar 16 is journaled.

The frame 11 is preferably formed of a sheet metal stamping to overlie the frame 10, one side of the frame 11 having a looped portion 26 forming a bearing in which the cross bar 15 of the frame 10 is journaled in order to provide a pivotal relation between the frames 10 and 11. The

frame 11 is centrally embossed or offset in keeping with good appearance and after the embossing and forming operation it is subjected to heat treatment in order to have imparted thereto high physical properties in the thin spring material of which the frame is formed.

As shown more particularly in Fig. 3, to thread the open buckle the free end of the strap 27 is passed through the opening of the frame 10 over the gripping portion 21 of the clamping bar 12 back between the arms 22 and 23 of the clamping bar and through the opening of the frame 10 to hang downwardly therefrom. The clamping bar 12 and the frame 11 are thereafter pivoted in a direction inwardly toward each other so that one side of the gripping portion 21 of the clamping bar 12 co-operates with the cross bar 15 to clamp the strap therebetween and the offset strap-engaging portion of the frame 11 clamps the strap on the other side of the gripping portion 21 to thus effect a double gripping action on the strap as shown more particularly in Fig. 2.

The frame 11 is provided with a loop 28 registering with the loop 17 of the frame 10, the opening of the loop communicating with a recess 29 of sufficient width to permit the passage there-through of the enlarged head 20 of the button. The enlarged head of the button is tilted to pass through the enlarged recess 29 so that the shank 18 of the button may engage the openings of the loop 28 and the loop 17. In this position of the button, the frames 10 and 11 are held together thereby and may only be disengaged to effect a relative pivotal movement therebetween upon a tilting of the button to release the button and the shank thereof from the button-retaining loops.

Referring now more particularly to Figs. 5, 6 and 7, the modified form of buckle shown therein as embodying the features of this invention comprises a frame 30 having a clamping bar 31 and a second frame 32 pivotally supported thereon. The frame 30 is preferably formed of a single continuous piece of wire, the ends of which are connected together by solder, welding, or other like means, to form spaced side bars 33 and 34 connected by cross bars 35 and 36. Cross bar 36 is provided with a loop portion 37, the opening of which communicates with the interior of the frame. Portions 38 and 39 of the cross bar 36 adjacent the side bars 33 and 34 are offset and are journaled in bearings 40 and 41, respectively, formed on the ends of the clamping bar 31.

The clamping bar 31 has an offset portion 42 intermediate the length thereof between the angularly extending arms adjacent the bearings, the offset portion subtending in close proximity a substantial portion of the length of the cross bar 35 for gripping a strap 43 threaded therebetween. The clamping bar 31 is preferably formed of a single continuous piece of wire formed into a substantially U-shape.

The frame 32 is preferably formed of a sheet metal stamping of relatively thin stock which, after the forming operations have been completed, is heat treated to effect a desired strength. One side of the frame is looped to form a bearing 44 in which the cross bar 35 is journaled so that a relative pivotal movement may be obtained between the frames 30 and 32. The opposite side of the frame is bent to provide spring fingers 45 for detachably engaging the cross bar 36. An intermediate portion of the frame is embossed or offset to provide a strap-engaging face, the frame overlying the frame 30 and, as shown more particularly in Fig. 6, the strap-engaging portion of

the frame clamps the strap against one side of the clamping bar 42 which latter, in turn, clamps the strap between it and the cross bar 35.

The threading of the strap through the elements of the buckle is done in the manner previously described with reference to Fig. 3, the strap 43 being threaded through the opening of the frame 30 around the gripping bar 42 and back through the opening of the frame 30 while the frame 32 is in an open position. A pivotal movement of the frame 32 and a pivotal movement of the clamping bar 31 in a direction inwardly toward each other clamp the strap in the position shown in Fig. 6.

The frame 32 is provided with a recess 46 opposite the opening into the loop 37 of sufficient width to accommodate the enlarged head of a button to permit access of the reduced shank of the button into the opening of the loop 37. Thus the button is retained in the button-retaining loop 37 by the enlarged head of the button, a tilting of the head through the recess 46 permitting disengagement of the button therefrom.

While but two embodiments of this invention are herein shown and described, it is to be understood that various modifications thereof may be apparent to those skilled in the art without departing from the spirit and scope of this invention and, therefore, the same is only to be limited by the scope of the prior art and the appended claims.

I claim:

1. A buckle comprising a frame having spaced side bars and spaced cross bars connecting said side bars, a clamping bar subtending in close proximity a substantial portion of the length of one cross bar of said frame for gripping a strap threaded therebetween and being pivotally supported by the other cross bar of said frame, and a second frame pivotally mounted on the gripping bar of said first frame, said second frame overlying said first frame and having a strap-engaging portion immediately adjacent to and for co-operation with said clamping bar for gripping the strap therebetween.

2. A buckle comprising a frame having spaced side bars and spaced cross bars connecting said side bars, a clamping bar subtending in close proximity a substantial portion of the length of one cross bar of said frame for gripping a strap threaded therebetween and being pivotally supported by the other cross bar of said frame, and a second frame pivotally mounted on the gripping bar of said first frame, said second frame overlying said first frame and having an offset portion forming a strap-engaging portion for co-operation with said clamping bar for gripping the strap therebetween.

3. A buckle comprising a frame having a single piece of wire formed into spaced side bars and spaced cross bars connecting said side bars, a U-shaped wire clamping bar having the intermediate portion thereof subtending in close proximity a substantial portion of the length of one

cross bar of said frame for gripping a strap threaded therebetween and having the ends thereof pivotally supported by the other cross bar of said frame, and a second frame pivotally mounted on the gripping bar of said first frame, said second frame being formed of a sheet metal stamping and overlying said first frame and having a strap-engaging portion immediately adjacent to and for co-operation with said clamping bar for gripping the strap therebetween.

4. A buckle comprising a frame having spaced side bars and spaced cross bars connecting said side bars, one of said cross bars being formed with a loop opening into the interior of the frame, a clamping bar subtending in close proximity a substantial portion of the length of one cross bar of said frame for gripping a strap threaded therebetween and being pivotally supported by the other cross bar of said frame, and a second frame pivotally mounted on the gripping bar of said first frame, said second frame overlying said first frame and having a strap-engaging portion for co-operation with said clamping bar for gripping the strap therebetween, said loop receiving the reduced shank of a button attached to an article to be supported and said second frame being recessed adjacent said loop to permit the passage of the enlarged head of the button therethrough.

5. A buckle comprising a frame having spaced side bars and spaced cross bars connecting said side bars, a clamping bar subtending in close proximity a substantial portion of the length of one cross bar of said frame for gripping a strap threaded therebetween and being pivotally supported by the other cross bar of said frame, and a second frame pivotally mounted on the gripping bar of said first frame, said second frame overlying said first frame and having a strap-engaging portion immediately adjacent to and for co-operation with said clamping bar for gripping the strap therebetween, one of said frames having an open loop for receiving the shank of a button attached to an article to be supported.

6. A buckle comprising a frame having spaced side bars and spaced cross bars connecting said side bars, one of said cross bars being formed with a loop opening into the interior of the frame, a clamping bar subtending in close proximity a substantial portion of the length of one cross bar of said frame for gripping a strap threaded therebetween and being pivotally supported by the other cross bar of said frame, and a second frame pivotally mounted on the gripping bar of said first frame, said second frame overlying said first frame and having a strap-engaging portion for co-operation with said clamping bar for gripping the strap therebetween and being formed with an open loop in registration with said first-mentioned loop for receiving the shank of a button attached to an article to be supported.

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