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BUCKLE AND SLIDE FASTENER
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This invention relates to fasteners and buckles and has particular reference to one-piece buckles through which the free end of a belt or strap is threaded or looped and then set at the desired position where it is prevented from slipping by the tension exerted on the belt or strap by the wearer of the strap and by the pressure of the buckle on the strap at the set position.

Among the objects of this invention is to provide a one-piece buckle possessing the advantages derived from the use of two separate rings of approximate D-shape, while eliminating certain disadvantages of the D-shaped rings, such as unsightly appearance, uncertain attachment and excessive cost of manufacture.

Another object of this invention is to provide an improved buckle which is of simple construction, easy to manufacture, and adapted for ready and rapid setting or release when in use.

Other, further and more specific objects of this invention will become readily apparent to persons skilled in the art from a consideration of the following description when taken in conjunction with the accompanying drawing wherein:

Fig. 1 is a front view of a form of buckle constituting my invention and embodying a curved front bar and a D-shape member integral therewith, the front bar being of reversed C-shape.

Fig. 2 is a cross-section through the middle of the buckle shown in Fig. 1.

Fig. 3 is an end view of the buckle shown in Fig. 1.

Fig. 4 is a view similar to Fig. 2 and illustrating a modification of the buckle shown in Fig. 1.

Fig. 5 illustrates a front view of another form of my improved buckle wherein two D-portions are integral with each other.

Fig. 6 is a cross-section through the middle of the buckle illustrated in Fig. 5.

Fig. 7 is an end view of the buckle illustrated in Fig. 5.

Fig. 8 is a view similar to Fig. 6 and illustrating a modification of the buckle shown in Fig. 5.

Fig. 9 is a cross-section through a fastening employing the buckle shown in Fig. 1.

Fig. 10 is a cross-section through a fastening employing the buckle shown in Fig. 5.

Fig. 11 is a front view of another modification of the buckle shown in Fig. 1.

The buckle shown in Figs. 1, 2, 3 and 9 comprises the D-shape portion 2 which is integral with and subordinates the curved front bar 4 having the form of a reversed C. The D-shape portion 2 provides the straight, rear, end bar 6 and the center curved bar 8 having the front convex edge 10 and the rear concave edge 12. The front convex edge 10 of the center bar 8 and the rear concave edge 14 of the front bar 4 form the boundary of an approximately crescent-shaped opening 16 between the front and center bars. The front bar 4 is bent downwardly to bring its front part substantially out of plane with the D-shape portion 2. In the form of buckle shown in Figs. 1, 2, 3 and 9, the front bar 4 is provided with a subjacent projection or tooth 18, the lower end of which is substantially below the bottom of the front convex edge 10 of the center bar 8.

The rear end bar 6 serves primarily for sewing or anchoring the buckle to the garment or the fastened end of a strap 20. The free end or take-up strap 22 is threaded from the rear of the buckle and passes upward through the D-shape opening 24 between the center and rear bars, then over the center bar 8, and then downward through the crescent-shaped opening 16 and under the tooth 18 and over the main body of the strap, which sets the buckle at the desired point by pulling the free end of the threaded strap through the buckle to the extent desired. When this threaded and set, the strap will form a loop 26 around the center bar 8. The front convex curved edge 10 of the center bar 8 co-operating with the tooth 18 of the front bar 4, which is disposed substantially below the bottom of the edge 20, causes the buckle to bear sufficiently against the strap 22 to efficiently prevent slippage of the strap.

When it is desired to loosen or release the strap, the buckle is raised up and easily slides from the strap.

In the modification shown in Fig. 4, the buckle is similar to that shown in Figs. 1, 2, 3 and 9. However, the projection or tooth on the front bar is omitted. To obtain a satisfactory bite on hold 40 on the strap with a buckle such as shown in Fig. 4, the bottom of the rear edge 14 on the front bar 4 is positioned practically as much below the bottom of the front edge 10 of the center bar 8 as the bottom of the tooth 18 is below the bottom 45 of the center bar 8 in the buckle shown in Figs. 1, 2, 3 and 9.

In the buckle illustrated in Figs. 5, 6, 7, and 10, the front bar 4 is also subordinated by the D-shaped portion 2 and is integral therewith. The buckle assumes a lapped, double-D form. In this form of buckle the opening 28 between the rear bar 6 and the center bar 8 is rectangular while the opening 30 between the front bar 4 and center bar 8 is substantially crescent-shape. This
buckle is also provided with the projection or tooth 18 on the front bar 4.
In the modification illustrated in Fig. 8, the buckle is similar to Fig. 5. However, the projection or tooth on the front bar is omitted.
In the modification shown in Fig. 11, the subjacent projection 32 on the front bar 4 has a plurality of teeth 34.

In use, the buckles shown in Figs. 5, 6, 7, 8, 10, and 11 perform substantially like the buckles shown in Figs. 1, 2, 3, 4, and 9. As will be seen from Figs. 9 and 10, when the buckle is in the adjusted position, owing to the fact that the lower part of the front bar is substantially out of plane with the bottom of the center bar, a very effective hold results and the strap is kept in secured position.

The buckles are preferably made of a suitable metal, such as steel or brass, and may be stamped in the desired shape and size. A decided economy in the cost of production is thus effected. In the illustrations, I have shown the curved portions of the bars as substantially circular arcs. It is to be understood that curves of other geometrical form may be used within the spirit and scope of my invention.

This form of buckle and slide fastener has a wide range of application, and is especially available for straps on wearing apparel including knit goods, clothing, adjustable caps, sweaters, leather jackets, water-proof garments, etc. The buckle may be permanently anchored by the rear bar to the garment or other wearing apparel or to one end of the strap or belt with which it is used.

It is to be understood that where the term "below" is used in the claims to define the relative positions between the low point on the front bar and the bottom of the center bar, the relation is that which exists when the buckle is in a horizontal position and its outer surface is on top, as shown in the cross-sectional views on the drawing.

The present invention is not limited to the specific details set forth in the foregoing examples which should be construed as illustrative and not by way of limitation, and in view of the numerous modifications which may be effected therein without departing from the spirit and scope of this invention, it is desired that only such limitations be imposed as are indicated in the appended claims.

I claim as my invention:
1. A buckle comprising a front bar, a center bar and a rear bar, said bars being integral with each other, said front bar having a rear concave arcuate edge and said center bar having a front convex arcuate edge, said front convex arcuate edge portion of said center bar being rounded from the top to the bottom, each of said arcuate edges forming part of the boundary of an approximately crescent-shaped opening between said front and center bars, and the bottom of the rear concave arcuate edge of said front bar being substantially below the bottom of the front convex arcuate edge of said center bar.
2. A buckle comprising a front bar, a center bar and a rear bar, said bars being integral with each other, said front bar having a rear concave arcuate edge and said center bar having a front convex arcuate edge, said front arcuate edge portion of said center bar being rounded from the top to the bottom, and each of said arcuate edges forming part of the boundary of an approximately crescent-shaped opening between said front and center bars, and a subjacent projection on the bottom of the rear convex arcuate edge of said front bar, said projection extending substantially below the bottom of the front arcuate edge of said center bar.
3. The combination claimed in claim 2, wherein the subjacent projection has a plurality of teeth.

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