April 23, 1935. P. W. WHITE 1,999,167

BUCKLE

Original Filed April 20, 1932

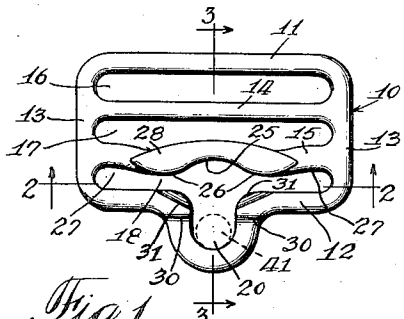


Fig. 1.

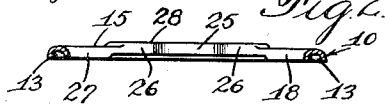


Fig. 2.

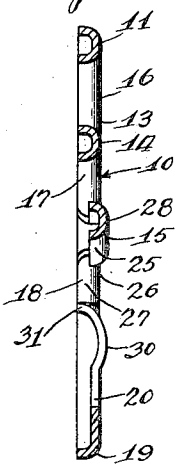


Fig. 3.

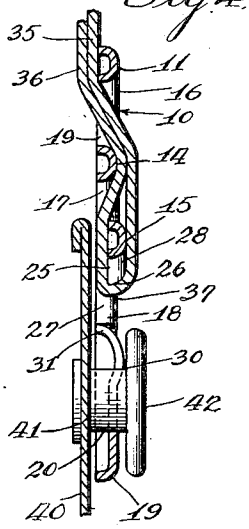


Fig. 4.

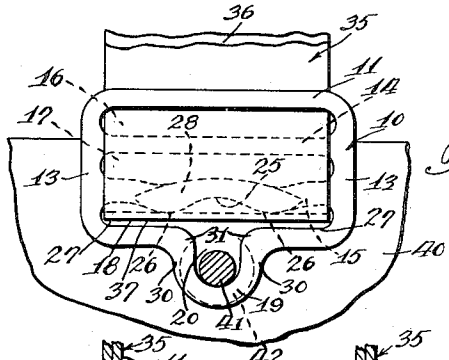


Fig. 7.

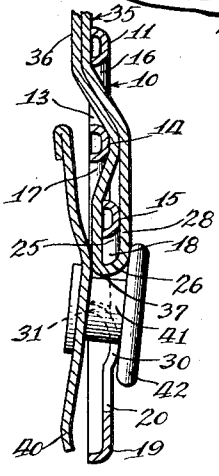


Fig. 5.

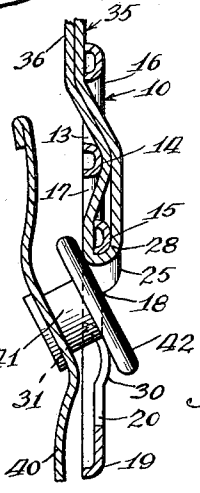


Fig. 6.

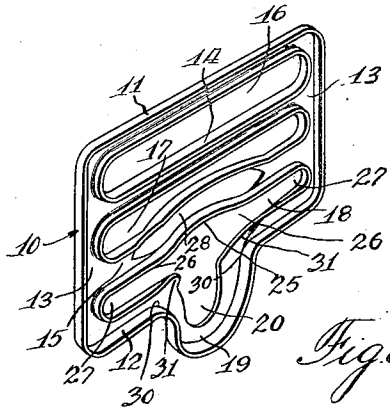


Fig. 8.

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Attys.

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UNITED STATES PATENT OFFICE

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BUCKLE

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Original application April 20, 1932, Serial No. 606,468. Divided and this application November 12, 1932, Serial No. 642,446

10 Claims. (Cl. 24—73)

This invention relates to a buckle and has as a primary object to improve generally and render more efficient and practical an article of this character.

The invention has as a further object to provide a buckle having a loop portion and having means for facilitating the introduction of a button or the like into engagement with this loop portion.

The invention further contemplates the provision of a buckle having a portion adapted to be engaged with a button and having a second portion adapted to be adjustably connected to a strap or the like, which buckle will be so constructed that the strap or the like will act to prevent accidental disengagement of the button from the portion of the buckle with which the button is engaged.

The invention further contemplates the provision of a buckle with which a strap or the like may be threadedly engaged, which buckle will be so constructed as to facilitate the threading and adjusting of the strap.

The invention further provides a buckle having a portion with which a button may be engaged and having portions acting to maintain the button in engaged position so as to prevent under all conditions accidental disengagement of the button.

The invention further provides a buckle which will be capable of use with buttons differing substantially in size.

Numerous other objects and advantages of this invention will become more apparent as the following description proceeds, particularly when reference is had to the accompanying drawing.

This application is a division of the copending application of Louis H. Erb, Serial No. 606,468, filed April 20, 1932, for Buckles.

In the drawing:

Figure 1 is a plan view of a buckle constructed in accordance with the teachings of this invention;

Fig. 2 is a sectional view taken substantially on the line 2—2 of Fig. 1;

Fig. 3 is a sectional view taken substantially on the line 3—3 of Fig. 1;

Fig. 4 is a semi-diagrammatic view similar to Fig. 3 showing a strap and button associated with the buckle;

Fig. 5 is a view similar to Fig. 4 showing a different position of the button;

Fig. 6 is a view similar to Fig 4 showing the position assumed by the button during disengagement of the button from the buckle;

Fig. 7 is a diagrammatic view similar to Fig. 1 showing a strap in threaded engagement with the buckle; and

Fig. 8 is a perspective view of the buckle showing the rear face thereof.

Referring then particularly to the drawing wherein like reference characters designate corresponding parts throughout all views, the buckle is shown as comprising a frame designated generally by the reference character 10. This frame is preferably rectangular in shape and comprises the upper and lower sides 11 and 12 connected by the spaced sides 13. Bars 14 and 15 connect the spaced sides so that the frame is divided to form the slots 16, 17, and 18. The side 12 of the frame is shaped to define a loop 19, the button-receiving opening 20 of which opens into the slot 18 within the frame.

The buckle may be conveniently stamped or otherwise formed from sheet metal so that the commercial production of the buckle is thus facilitated. During the forming of the buckle the rear face thereof is preferably dished, as clearly illustrated in Fig. 8 of the drawing, with the result that the buckle frame as well as the cross bars thereof are strengthened, and relatively light gauge metal may be utilized, while still producing a buckle of the desired strength. It will be noted that this dishing of the rear face of the buckle renders the several sides, cross bars and loop portion of the buckle substantially channel-shaped in cross section, the front faces of these several parts of the buckle being convex in shape and the rear faces thereof being concave.

The cross bar 15 which, it will be noted, is adjacent the side 12 of the buckle frame is cut away centrally to provide a recess 25 which is opposite the opening into the loop 19. Thus the slot 18 is relatively wide opposite the opening into the loop, and it constitutes a feature of this invention that the central portion of the bar 15 is cut on an arc to form this relatively wide portion of the slot 18. The bar 15 is further provided with offset portions 26 disposed on opposite sides of the recess 25 and extending toward the side 12 of the frame so that the width of the slot 18 is restricted at these points. The bar 15 is reduced in width between each of the offset portions 26 and an adjacent side 13 to form small recesses 27 between each offset portion of the bar and an adjacent side of the buckle frame. The central portion of the bar 15 is further displaced forwardly or upwardly out of the plane of the remainder of the buckle frame, as clearly illustrated in Fig. 3 of the drawing, this displaced portion of the bar extending a substantial distance longitudinally thereof, as illustrated in Fig. 1 of the drawing, the displaced portion being designated by the reference character 28.

The portions of the side 12 defining the opening into the loop 19 are offset upwardly or forwardly with reference to the remainder of the front face of the loop, as clearly illustrated in Fig. 3 of the drawing. These portions are designated by the reference character 30, and it will

be noted that they are offset sufficiently to lie in the plane of the front face of the displaced portion 28 of the bar 15. Further, adjacent each displaced portion 30 the side 12 of the frame is provided with displaced portions 31, these portions being displaced to extend below the plane of the rear face of the portion 28 of bar 15.

The reference character 35 designates a strap which may be, for example, an overall strap and is shown as being threadedly engaged with the buckle in the following manner. The strap passes downwardly in the rear of the side 11 of the buckle and then forwardly through slot 16. The strap is then extended around both bars 14 and 15 and then rearwardly through slot 18. The strap is then passed upwardly and forwardly through slot 17 and then rearwardly and upwardly through slot 16, the free end 36 of the strap being disposed in the rear of the body portion of the strap and thus behind the buckle.

It will be noted that when the strap is thus threadedly engaged with the buckle the line of fold 37 of the strap is positioned adjacent the opening into the loop 19 and thus substantially closes this opening. It will be noted further that the offset portions 26 of the bar 15 engage the strap at the line of fold thereof so that a relative pull between the strap and buckle is exerted on the strap and buckle at the points of engagement of the offset portions of the bar 15 with the strap.

The reference character 40 designates a garment such, for example, as an overall bib, and fixed to this bib is the shank 41 of a button 42. This button is adapted to be engaged with the loop 19 of the buckle by positioning the shank 41 of the button in the opening 20 of the loop.

In use, a strap will be threadedly engaged with the buckle in the manner previously described, and the button will be engaged with the loop 19. The introduction of the button into engagement with the loop is facilitated by virtue of the fact that the portion 28 of the bar 15 is offset forwardly, while the side 12 of the buckle frame is provided with the depressed portions 31 which are adapted to engage the edge of the button to direct the same forwardly through slot 18 to a position where the shank of the button is positioned in the opening 20 with the head of the button engaging the front face of the loop 19. This position of the button is illustrated in Fig. 4 of the drawing.

As long as there is a relative pull between the strap and button, the button will remain in the position shown in Fig. 4 of the drawing, or, in other words, in the lower end of opening 20. If, however, this relative pull should be relieved and the button should slip upwardly in the loop, it will be noted, by reference to Fig. 5 of the drawing, that the displaced portions 30 of the button loop will deflect the button forwardly so as to cause the same to ride over the fold of the strap 35. Thus the button may not become accidentally disengaged from the button loop.

When, however, it is desired to disengage the button from the loop, the button may be tilted to engage the edge thereof with the adjacent folded portions of the strap, forcing this folded portion into the recess 25, as clearly illustrated in Fig. 6 of the drawing, thus allowing the passage of the button through the slot 18 and thus to disengaged position.

It is to be noted that the line of fold of the strap being positioned as it is adjacent the outlet opening of the button-receiving loop, constitutes a means for yieldably maintaining the button in engagement with the loop. Thus it becomes necessary to displace the adjacent folded portion of the strap to effect a disengagement of the button from the loop with the result that the folded portion of the strap constitutes in effect a resilient or compressible cushion for maintaining the button in engaged position.

As brought out before, the bar 15 is preferably cut on a definite arc to form the recess 25, and this arc preferably conforms substantially to the curvature of the edge of the button adapted to be engaged in the buckle loop, with the result that when the folded portion of the strap is forced into the recess 25, clearance is provided to permit the passage of the edge of the button rearwardly through slot 18 and thus to disengaged position. It is to be noted further that the line of fold of the strap is engaged by the offset portions 26 of the bar 15 and that in view of these offset portions and the shallow recesses 27, the side edges of the strap are prevented from slipping inwardly toward the center of bar 15. Thus the folded portion of the strap is held under tension between the offset portions 28 of the bar, the folded portion of the strap thus spanning the recess 25 and constituting a cushioning means as above described.

It is to be noted that the displacement of the portion 28 of the bar 15 serves a double purpose in that it first provides clearance for the edge of the button during introduction of the button into the loop 19, thus facilitating the engagement of the edge of the button with the portions 31 of the side 12 of the frame which aid in guiding the button into the button loop. The displaced portion 28 of the bar 15 serves a further purpose in that it aids in maintaining the under part of the strap 35 in a common plane, thus facilitating the threading and adjustment of the strap.

The folded portion of the strap acting as it does to substantially close the opening into loop 19 makes the buckle adaptable to buttons of different sizes for the reason that this folded portion of the strap in substance takes up a part of the area of the button-receiving loop, which may be considered as comprising not only the opening 20, but also the adjacent portion of the slot 18. Further, the portions 26 of the bar 15 extending as they do into proximity of the side 12 of the frame, restrict the width of the slot 18 on opposite sides of the loop 19 with the result that movement of the shank of the button longitudinally of the slot 18 is limited. Thus the button may not be moved laterally to a position where it might become disengaged from the button loop by lateral tipping.

The convex outer surfaces of the bar 15 and side 12 make it necessary to tilt the button a substantial extent before the button may be disengaged from the loop. The depressed portions 31, however, of the loop allow the necessary tilting of the button, with the result that when desired, the button may be readily moved out of engagement with the loop.

From the above it will be apparent that the invention provides a buckle which may be economically manufactured and which, while providing for the ready engagement of a button with the loop of the buckle, will, nevertheless, absolutely prevent accidental disengagement of the button from this loop. It will be apparent further that the invention provides a buckle with which a strap may be easily threadedly engaged and also provides a buckle in which the strap

may be readily adjusted after its threaded engagement with the buckle.

While the invention has been described with some detail, it is to be understood that the description is for the purposes of illustration and is not definitive of the limits of the inventive idea. The right is reserved to make such changes in the details of construction and arrangement of parts as will fall within the purview of the attached claims.

I claim:

1. A new article of manufacture comprising a sheet metal frame providing a button-receiving loop and providing an opening into the loop through which a button may be introduced into engagement with the loop, said frame having upper, lower, and intermediate strap openings formed by transverse bars extending across the frame to enable a strap to be threaded through said upper opening from rear to front, thence downwardly and through said lower opening from front to rear, thence upwardly and through said intermediate opening from rear to front and thence upwardly and through said upper opening from front to rear, the top of the outer bar at either side of the opening into the loop being inclined to the back of the frame to provide inclined surfaces to facilitate said introduction.

2. A new article of manufacture comprising a frame having spaced sides and having a third side formed with a loop opening to the interior of the frame, a bar connecting the said spaced sides of the frame and disposed adjacent the loop side of the frame, said bar being so arranged with respect to the said loop that a button when removed from the loop must pass in the rear of said bar, portions of the third side of the frame defining the opening into the loop being displaced out of the plane of the remainder of the loop to normally deflect a button moving out of the loop to a position in front of the said bar.

3. A new article of manufacture comprising a frame having spaced sides and having a third side formed with a loop opening to the interior of the frame, a bar connecting the spaced sides of the said frame and disposed adjacent the loop side of the frame, said bar having a portion displaced in one direction with respect to the plane of the frame and said loop having portions displaced in an opposite direction to facilitate the passage of a button past said bar and into engagement with the said loop.

4. In combination, a sheet metal stamping shaped to define a substantially rectangular frame, a loop formed integral with one side of said frame and opening to the interior of the frame, bars spanning said frame in substantial parallelism with the loop side of the frame, the bar adjacent the loop side of the frame having a portion displaced out of the plane of the frame and having offset portions extending toward the loop side of the frame on opposite sides of the loop therein, the arrangement being such that a strap threaded forwardly over the top of the other of the said bars, rearwardly under the bar having the offset portions, forwardly through the space between said bars, and then rearwardly over the top of said first threaded bar will have its free end positioned in the rear of the frame.

5. A new article of manufacture comprising a frame having spaced sides and having a third side formed with a loop opening to the interior of the frame, and a bar connecting the spaced sides of the frame and disposed adjacent the loop side of the frame, said bar being so arranged with respect to the said loop that a button when moved into engagement with the loop must pass in the rear of the bar, said bar being provided with a forwardly offset portion to facilitate introduction of a button into engagement with the loop.

6. A new article of manufacture comprising a frame having spaced sides and having a third side formed with a loop opening to the interior of the frame, a bar connecting the said spaced sides of the frame, said bar being provided with a convex front face and being disposed adjacent the loop side of the frame and so arranged with respect to the said loop that a button when removed from the loop must be tilted and then passed in the rear of said bar, the portions of the third side of the frame defining the opening into the loop being displaced rearwardly out of the plane of the adjacent portion of the frame to facilitate the necessary tilting of the button to pass the same in the rear of the said bar.

7. A buckle comprising a frame and a loop formed in one side of the frame, said frame having a pair of spaced bars connecting opposite sides thereof, one of said bars adjacent said loop having a portion so displaced out of the plane of the frame that a strap threaded forwardly over the top of the other of said bars, rearwardly under the bar having said displaced portion, forwardly through the space between said bars, and then rearwardly over the top of said first threaded bar will be held with the portion thereof in the rear of the displaced portion of the one bar substantially in the plane of the other bar.

8. A buckle adapted to have a strap threaded through it, which comprises a plate formed of a single piece of metal by stamping, said plate including four transverse bars defining intermediate slots, said bars having edge flanges projecting from the rear face of the plate, one outer bar having an outwardly curved extension forming a recess for the reception of the shank of a button, and the next adjacent bar having a narrow portion facing said recess and wider portions on opposite sides of said recess, the tops of said wider portions being formed with projections operable to resist movement of said strap relative to said buckle.

9. A buckle adapted to have a strap threaded through it, which comprises a plate formed of a single piece of metal by stamping, said plate including four transverse bars defining intermediate slots, one outer bar having an outward extension forming a recess for the reception of the shank of a button, and the next adjacent bar having a portion of reduced width opposite the opening to said recess, the top of said outer bar at either side of the opening to said recess being inclined toward the back of said plate and said extension having upward projections adjacent the ends of said inclined surfaces.

10. A buckle adapted to have a strap threaded through it, which comprises a plate formed of a single piece of metal by stamping, said plate having four transverse bars and three intermediate slots, one of the outer bars having an outward extension forming a recess for the reception of the shank of a button, and the next adjacent bar having a narrow portion facing said recess and wider portions on opposite sides of said recess.

PAUL W. WHITE.