April 23, 1935. L. H. ERB 1,999,166

BUCKLE

Filed April 20, 1932

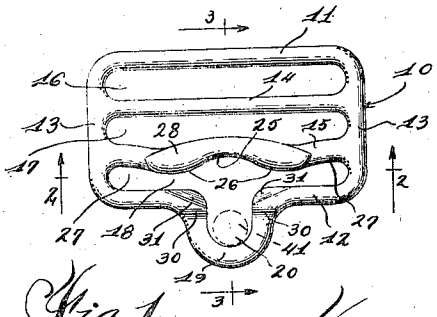


Fig. 1.

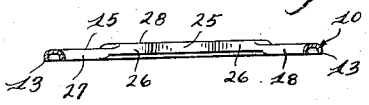


Fig. 2.

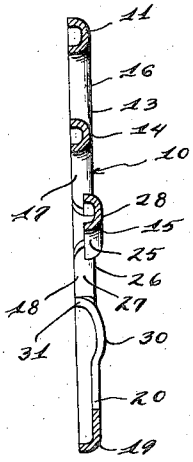


Fig. 3.

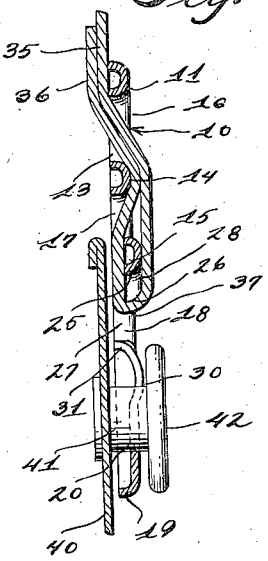


Fig. 4.

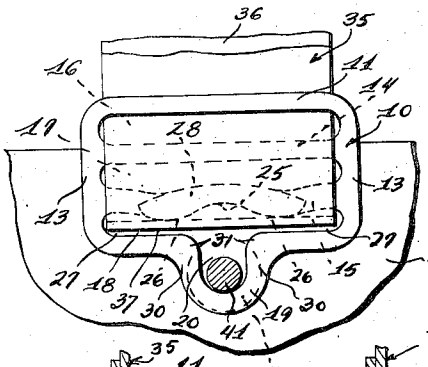
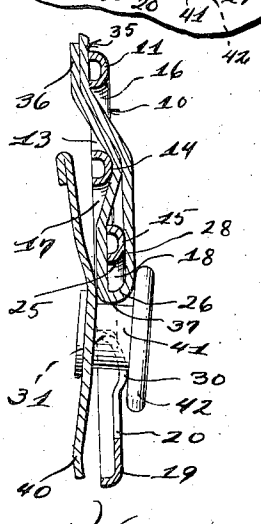


Fig. 7.



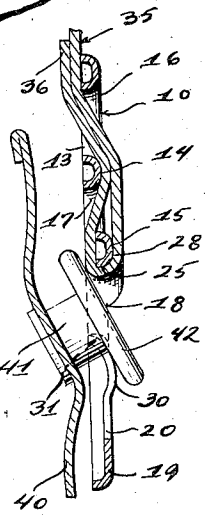


Fig. 5.

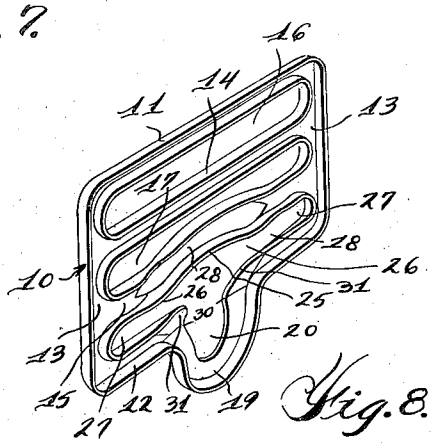


Fig. 8.

Fig. 6.

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UNITED STATES PATENT OFFICE

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BUCKLE

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Application April 20, 1932, Serial No. 606,468

13 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, wherein:

Fig. 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 19, 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 18 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 portion 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 makes 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.

What I claim as my invention is:

1. A new article of manufacture comprising a frame having spaced sides and having a third side formed with a loop portion having an opening to the interior of the frame, said opening being of substantially the same size as the loop, a bar connecting the spaced sides of the frame and cooperating with the loop side of the frame to form a slot in communication with the loop opening and through which a button must pass in its movement into and out of engagement with the loop, said bar having portions disposed in close proximity to the loop side of the frame adjacent the loop therein to limit lateral movement in the said slot of the shank of a button engaged in the loop.

2. A new article of manufacture comprising a frame having spaced sides and having a third side provided with a loop portion having an opening of substantially the same size as said loop communicating with the interior of the frame to provide for the movement of a button into and out of engagement with the loop, a bar connecting the spaced side of said frame and disposed in proximity to the loop side of the frame, said bar being provided with a pair of offset portions extending toward the loop side of the frame and disposed on opposite sides of the opening into the loop, said bar being provided with recesses between said offset portions, the third side of the frame and the spaced sides of the frame, the arrangement being such that a strap folded around said bar with the line of fold thereof engaging the said offset portions of the bar will be so supported by the offset portions as to span the recess in the bar between the said offset portions, the recesses in said bar between the offset portions and the spaced sides of the frame tending to maintain the portion of said strap spanning the space between said offset portions under tension.

3. In combination, a frame having spaced sides and having a third side formed with a loop portion having an opening communicating with the interior of the frame said opening being of substantially the same size as the loop and through which opening the shank of a button must pass during movement of the button into or out of engagement with the loop, and means associated with the frame for supporting a strap in folded position adjacent the opening into the loop whereby the line of fold of the strap will yieldably maintain a button in the loop.

4. In combination, a frame having spaced sides and having a third side formed with a loop portion having an opening to the interior of the frame, said opening being of substantially the same size as the loop to provide for the movement of a button into and out of engagement with the loop, a bar connecting said spaced sides, and means for holding a strap in folded position around said bar with the portions of said strap adjacent the line of fold extending from the bar in the same direction and with the line of fold of the strap substantially closing the open side of the loop to yieldably maintain a button in the loop.

5. In a loop slide buckle comprising a buckle frame having upper, lower and side bars, an outwardly extending substantially semi-circular button-retaining loop formed in said lower bar, an intermediate bar extending from one to the other of said side bars, the central portion of said intermediate bar being so formed as to provide a recess in said bar facing said button-retaining loop to provide head room for the insertion of a button into the loop, and a strap so threaded into the slide buckle and folded around said intermediate bar as to provide a central flexible yielding strap portion in said fold to permit the button to be forced into or out of the button loop only by the yielding of said flexible strap fold.

6. In a loop slide buckle comprising a buckle frame having upper, lower and side bars, an outwardly extending substantially semi-circular button-retaining loop formed in said lower bar, an intermediate bar extending from one to the other of said side bars, a central portion of said intermediate bar being of arciform structure to provide head room for the insertion of a button into the loop, and a strap so threaded into the slide buckle and folded around said intermediate bar as to provide a central flexibly yielding strap portion in said fold to permit a button to be forced into or out of the button loop only by the yielding of said flexible strap fold.

7. In a loop slide buckle comprising a buckle frame having upper, lower and side bars, an outwardly extending button-retaining loop formed in said lower bar, said loop being adapted to hold the shank of a button, the width of said loop throughout its length being insufficient to permit the button to be passed therethrough to thus adapt the loop to hold the button releasable and insertable only above said lower bar, an intermediate bar extending from one to the other of said side bars, a central portion of said intermediate bar being of arciform structure to provide head room for the passing of the button into and out of the loop, and a strap so threaded into the slide buckle and folded around said intermediate bar as to provide a central flexibly yielding strap portion in said fold to permit the button to be forced into or out of the loop only by the yielding of said flexible strap fold.

8. The combination of a rigid button loop comprising a one-piece structure providing a horizontally extending loop having opposed enlargements intermediate its length, a looped strap within the loop, said structure engaging marginal portions of said strap, a middle portion of the looped strap covering one of said enlargements and a button inserted within the other of said enlargements, the portion of the looped strap covering said enlargement cooperating with the button holding enlargement to normally provide a barrier behind a top portion of the inserted button to prevent its unintentional release, but said portion of the looped strap being yieldable to permit a forced engagement and disengagement of the button with the button holding enlargement.

9. In combination, a frame having spaced sides and having a third side formed with a looped portion having an opening to the interior of the

frame, said opening being of substantially the same size as the loop to provide for the movement of a button into and out of engagement with the loop, a bar connecting said spaced sides, said bar having an offset portion, and a strap folded around said bar, the portions of said strap adjacent the fold extending from said bar in the same direction and the line of fold of the strap engaging said offset portion, the line of fold of said strap substantially closing the open side of the loop to yieldably maintain a button in the loop.

10. In combination, a frame having spaced sides and having a third side formed with a loop portion having an opening to the interior of the frame, said opening being of substantially the same size as the loop to provide for the movement of a button into and out of engagement with the loop, means connected to the spaced sides of the frame, said means having portions disposed in proximity to the loop side of the frame adjacent the open end of the loop and providing a recess opposite the open end of the loop, and a strap folded around said means, the portions of said strap adjacent the fold extending from said means in the same direction, said strap being so supported by the said portions of the means as to span the recess opposite the open end of the loop to yieldably maintain a button in the loop.

11. In combination, a frame having spaced sides and having a third side formed with a loop portion having an opening to the interior of the frame, said opening being of substantially the same size as the loop to provide for the movement of a button into and out of engagement with the loop, and a bar connecting said spaced sides, said bar having a plurality of offset portions spaced longitudinally thereof and extending toward the said loop, the arrangement being such that a strap folded around said bar will be so supported by the said offset portions of the bar that the fold of the strap substantially closes the open side of the loop to yieldably maintain a button in the loop.

12. A rigid button loop of one-piece structure comprising a frame providing communicating loops, one loop being adapted to receive a looped strap from which the button loop may be suspended, and the other loop being adapted to hold the shank of a button, an enlargement with which the strap-receiving loop is provided intermediate its length, the communicating loops being so relatively associated that a fold in the looped strap portion at such enlargement is adapted to cooperate with the button holding loop as said fold normally rests behind a top portion of an inserted button within the holding loop to hold the button against unintentional release, but said fold being yieldable to permit a button to be urged within and released from the button holding loop.

13. In combination, a sheet metal stamping shaped to define a substantially rectangular frame comprising side bars connected by upper, lower and intermediate transverse bars, said lower bar having a loop formed integral therewith and an opening communicating between said loop and the interior of the frame, said opening being of substantially the same size as the loop and through which opening the shank of a button must pass during movement of the button into or out of engagement with the loop, and a strap threaded forwardly over the top of one of said intermediate bars, rearwardly under the intermediate bar adjacent said lower bar having the loop, forwardly through the space between said intermediate bars, and rearwardly over the top of said first threaded bar, the arrangement of said transverse bars and said strap being such as to present a looped strap around said lower intermediate bar to block the opening to the button loop.

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