Dec. 2, 1958 F. B. HARLEY 2,862,271

RELEASABLE BUCKLES

Original Filed July 17, 1950

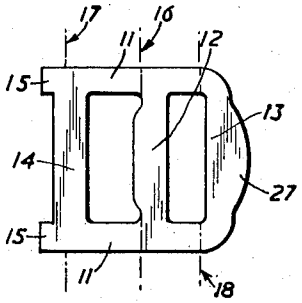


FIG. 1.

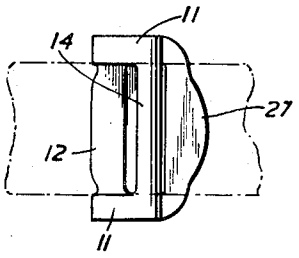


FIG. 2.

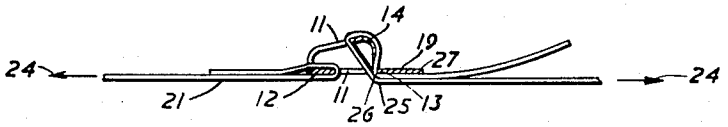


FIG. 3.

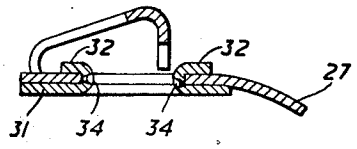


FIG. 4.

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RELEASABLE BUCKLES

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Original application July 17, 1950, Serial No. 174,149, now Patent No. 2,269,220, dated November 6, 1956. Divided and this application April 30, 1956, Serial No. 581,649

Claims priority, application Great Britain February 3, 1950

5 Claims. (Cl. 24—197)

This invention relates to releasable buckles for connecting a strap to another part and one object is to provide a simple buckle which can be readily manufactured by bending from a single stamping, but which yet enables a firm grip on a strap to be achieved.

According to the present invention, a releasable buckle for connecting a strap to another part, comprises a frame formed by bending a single flat stamping consisting of two side members joined by three parallel transverse bars, namely a main anchorage adjacent one end for connection to the part to be connected to the strap, an auxiliary anchorage adjacent the other end for connection to the strap, and a transverse gripping bar, which gripping bar is on the other side of the main anchorage from the auxiliary anchorage in the flat stamping, but after the stamping has been bent is positioned over the space between the main and auxiliary anchorages on one side of the plane of tension between the main and auxiliary anchorages.

Preferably the buckle includes means preventing the gripping bar from moving nearer to the auxiliary anchorage than the thickness of the strap. For example, end portions of the side members of the frame may extend beyond the gripping bar and after the stamping has been bent may abut the portions of the side members between the main and auxiliary anchorages. This prevents the buckle being deformed under tension so as to grip the strap positively between the gripping edge and the auxiliary anchorage and renders the likelihood of damage to the strap, such as would be caused by prongs or teeth, to be more remote.

In order to ensure a strong grip after the stamping has been bent the position of the gripping bar may be such that when the strap is passed under the auxiliary anchorage around the gripping bar and back round the auxiliary anchorage between it and the standing end of the strap and tension is applied, the strap is in contact with the auxiliary anchorage through an angle of at least about 90°.

In one form of the invention after the stamping has been bent each side member is in side view in the general form of a triangle with one side prolonged, which side extends between the main and auxiliary anchorages, while the gripping bar is positioned in the region of the opposite corner. Thus the side connecting the said opposite corner to the intermediate part of the prolonged side may comprise an end portion of the side member which extends beyond the gripping bar and abuts the intermediate part of the side members between the main and auxiliary anchorages to prevent the gripping bar at the said opposite corner from moving nearer to the auxiliary anchorage.

The invention may be carried into practice in various ways and one specific embodiment will be described by way of example with reference to the accompanying drawings in which,

Figure 1 is a plan view of a stamping which is to be bent to form the buckle,

Figure 2 is a view corresponding to that of Figure 1 but after the stamping has been bent,

Figure 3 is a side view of the buckle shown in Figure 2, with the strap in position, and

Figure 4 is a sectional side view corresponding to Figure 3 but without the strap in position, showing an optional additional plate.

As can be seen in Figure 1 the buckle is formed from a single stamping consisting of two side members **11** between which extend three parallel transverse members, namely a central member **12** which forms a main anchorage for connection to the part to be connected to the strap, an auxiliary anchorage **13** for connection to the strap, and a transverse gripping bar **14**. In the flat stamping, the main anchorage **12** lies between the auxiliary anchorage **13** and the gripping bar **14**, while the side members **11** extend a little beyond the gripping bar **14** to form feet **15**.

To form the buckle the stamping is bent upwards as shown in Figure 1 about the line **16** and the line **17**, while if desired the auxiliary anchorage may be bent a little downwards about line **18** as shown in Figure 4.

The stamping is bent to the form shown in Figures 2 and 3 in which each side member **11** is generally in the form of a triangle with one side prolonged as shown at **19** in Figure 3, which side extends between the main and auxiliary anchorages **12** and **13**, while the transverse gripping bar **14** is positioned above the space between the main and auxiliary anchorages. Each foot **15** constitutes a part of one side of the triangle and abuts the side member **11** between the main and auxiliary anchorages and prevents the gripping bar **14** from moving nearer to the auxiliary anchorage **13**.

The auxiliary anchorage and gripping bar are spaced apart by a distance a little greater than the thickness of the strap **21**.

The part to be connected to the strap—as shown, the other end of the strap **21**—is secured to the main anchorage **12** and the free end of the strap after passing round the body to be held, for example a pile of books, is passed under the auxiliary anchorage **13**, through the space between the main anchorage **12** and the gripping bar **14**, around the gripping bar and back between the gripping bar and the auxiliary anchorage and thence between the underside of the auxiliary anchorage **13** and the upper side of the adjacent or standing end portion of the strap as shown in Figure 3.

When tension is applied betwen the two ends of the strap as shown at **24**, the gripping bar is positioned on one side of the plane of tension so that the tension tends to increase the grip of the strap as the standing end **25** presses the free end **26** against the edge of the auxiliary anchorage **13**. It will be seen from Figure 3 that the position of the gripping bar is such that the free end of the strap **26** embraces the edge of the auxiliary anchorage **13** through an angle a little in excess of 90° and this ensures that a tight grip is obtained, allowing no slip. The buckle can be released by lifting the free end of the auxiliary anchorage **13** which is shown as formed with a finger tab **27** for this purpose. It may be convenient, as shown in Figure 4, for this finger tab to be bent a little downwards.

It will be appreciated that the grip is obtained without having recourse to prongs, teeth, or other parts which cut into the strap and which tend to weaken the strap, making it more likely to fail. If desired, a plate **31**, shown in Figure 4, may be secured at the under side of the main stamping by means of flanges **32** projecting up through the space between the main and auxiliary anchorages and bent back over the top faces of the respective anchorages to provide a larger, and smooth, surface in contact with the strap to decrease the danger of dam-

age to the strap by its being pulled against the sharp edge. If recourse is not had to this plate **31**, it is preferred that the inner edges of the main and auxiliary anchorages **12** and **13** are rounded as shown in Figure 3 to reduce the likelihood of damage to the strap.

The frictional grip to the strap can be increased by providing surface holes **34** in the bent over edges of the plate **31** to increase the frictional grip without providing sharp edges.

This application is a division of applicant's application Serial No. 174,149, filed July 17, 1950, now Patent No. 2,269,220.

What I claim as my invention and desire to secure by Letters Patent is:

1. A releasable buckle for connecting a strap to another part, comprising a frame of sheet material consisting of two side members interconnected by three parallel transverse bars, namely a main anchorage for connection to the part to be connected to the strap, and an auxiliary anchorage and a gripping bar to hold the strap, the gripping bar being positioned over the space between the main and auxiliary anchorages on one side of the plane of tension between them, so that said strap can be held by passing its free end under the auxiliary anchorage around the gripping bar and back under the auxiliary anchorage between it and the standing end of the strap, in which each side member extends substantially straight from the auxiliary anchorage to the main anchorage and then turns back to the gripping bar, and has a portion projecting beyond the gripping bar which extends approximately perpendicularly to the plane of the anchorages and abuts against the portion of the said side member between the main and auxiliary anchorages, thereby spacing the gripping bar from the plane of the anchorages and preventing it from being pulled into said plane.

2. A buckle as claimed in claim 1 in which the gripping bar is curved in sections perpendicular to its length.

3. A buckle as claimed in claim 1 in which the gripping bar is curved through an arc of not less than 90° and positioned so that when the free end of the strap is passed under the auxiliary anchorage around the gripping bar and back under the auxiliary anchorage between it and the standing end of the strap, and tension is applied, the strap is in contact with the auxiliary anchorage through an angle of at least about 90°.

4. A buckle as claimed in claim 1 in which each side member is in side view in the general form of a triangle with one side prolonged, which side extends between the main and auxiliary anchorages, while the gripping bar is positioned in the region of the opposite corner.

5. A buckle as claimed in claim 4 in which the side connecting the said opposite corner to the intermediate part of the prolonged side, comprises an end portion of the side member which extends beyond the gripping bar and abuts the intermediate part of the side members between the main and auxiliary anchorages to prevent the gripping bar at the said opposite corner from moving nearer to the auxiliary anchorage.

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