Nov. 13, 1962 J. MIHALYI 3,063,116

BUCKLE STRUCTURE

Filed Feb. 5, 1960 2 Sheets-Sheet 1

Fig. 1

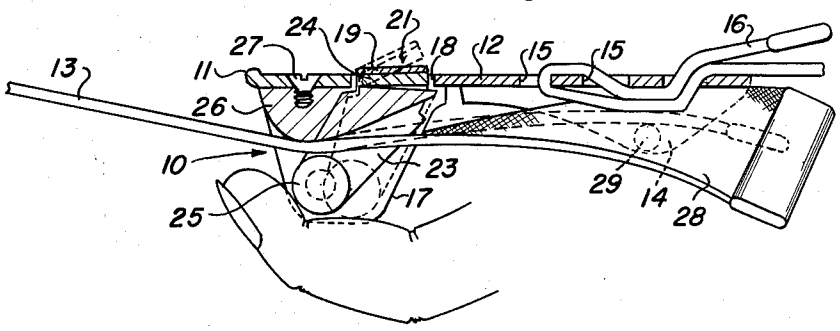


Fig. 2

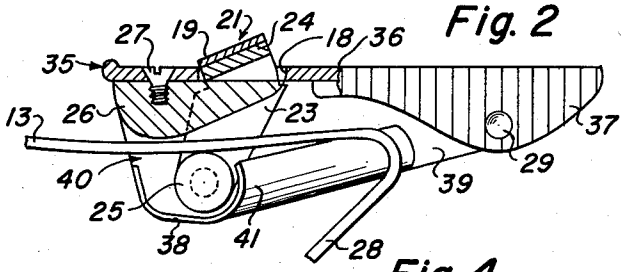


Fig. 3

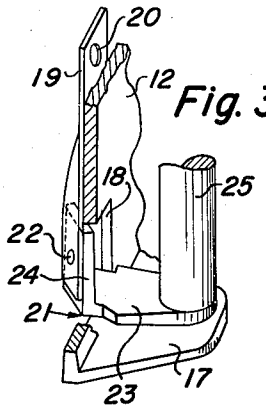


Fig. 4

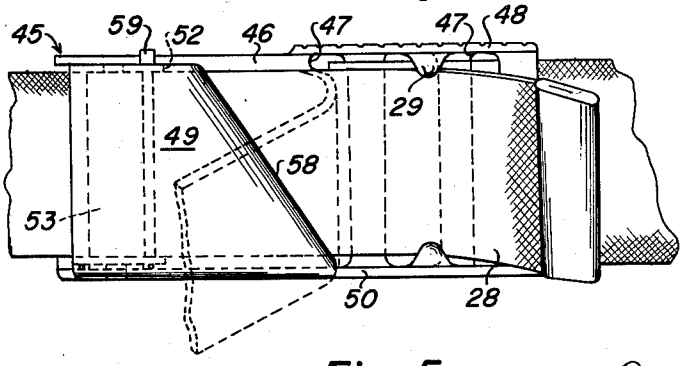
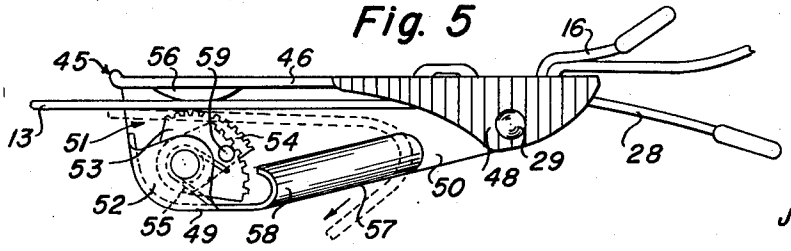


Fig. 5



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Nov. 13, 1962 J. MIHALYI 3,063,116

BUCKLE STRUCTURE

Filed Feb. 5, 1960 2 Sheets-Sheet 2

Fig. 6

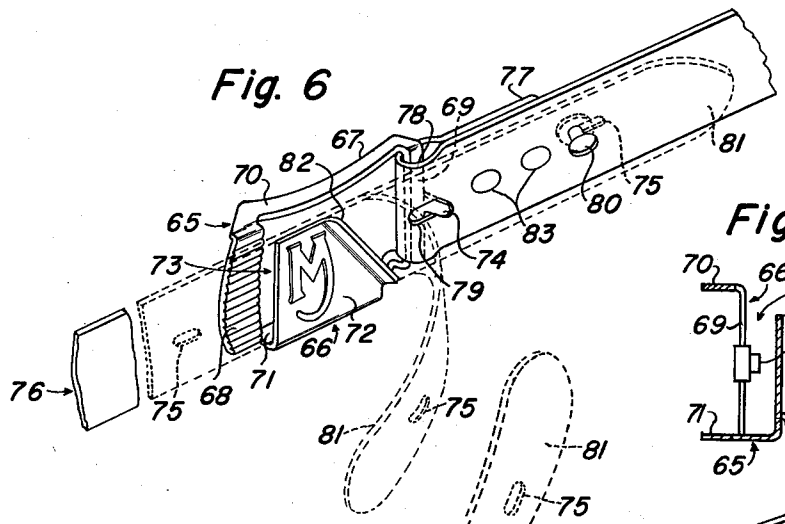


Fig. 7

Fig. 8

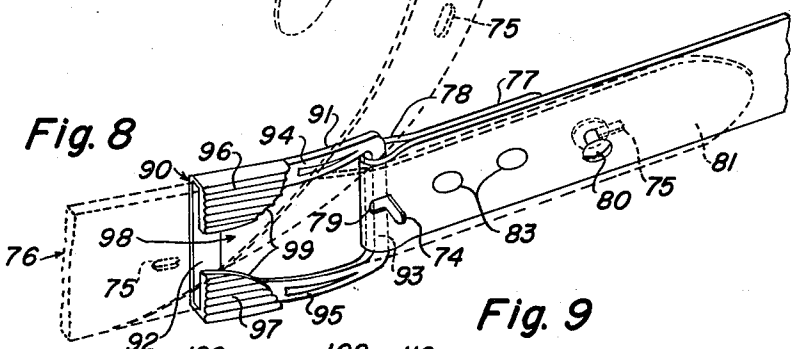


Fig. 9

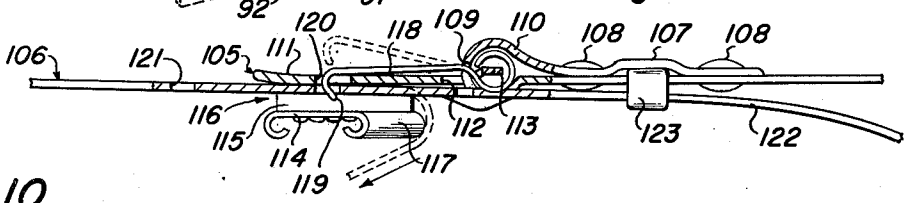


Fig. 10

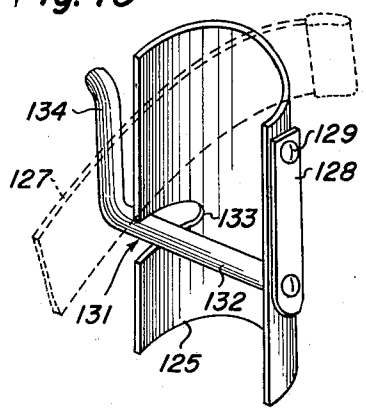
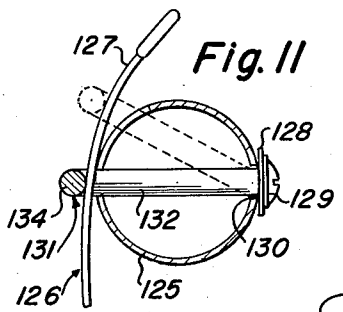


Fig. 11



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3,063,116

BUCKLE STRUCTURE

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Filed Feb. 5, 1960, Ser. No. 7,023
4 Claims. (Cl. 24—170)

The present invention relates to a buckle structure and more particularly to a buckle structure adapted to receive a belt by insertion thereof edgewise into relation with the buckle and to a buckle structure which permits the belt to be quickly and completely released and disengaged from the buckle with a single movement of the free end of the belt.

Buckle structures in which a belt is threaded through the buckle and into engagement with means for holding the belt in captive relation are well known. In such structures, one end of the belt is secured by some known fastening means to one end of the buckle and the free end and, after encircling the article to be held, is threaded through the buckle and into relation with the holding means on the buckle for securing the other end of the belt in a captive relation. When such buckles are used, it is necessary, when releasing the belt from the buckle to exert additional force on the belt in order to move the secured portion of the belt past the holding means. In addition and at the same time, it is necessary to maintain the holding means, such as a tongue, in a position so it cannot again engage the belt. As a result, two hands are usually required to completely release and disengage the free end of the belt from its captive relation with the buckle. Where such belt and buckle structures are used in conjunction with so-called safety belts, quick and positive release of the belt from the buckle is not possible.

In the buckle embodiments disclosed and described herein, a novel buckle structure is set forth which permits fast and sure placement of the belt into relation with the buckle and also quick and positive release of the belt from the buckle with a single movement of the free end of the belt. This is accomplished by providing a buckle having the belt secured to one end in the normal manner and capable of receiving the other end merely by inserting the belt edgewise into relation with the buckle. In each of the disclosed embodiments, the buckle comprises, in effect, a three-sided open slot together with means for holding or securing the other or free end of the belt in captive relation. The buckle is provided with an inclined ramp or edge against which the free end of the belt is moved to quickly release the belt from the holding means and the buckle. To accomplish this release, only one hand is needed and since the buckle is open on the top, movement of the belt against the ramp immediately frees the belt from the holding means as well as the buckle. It will be readily appreciated that the buckle structure disclosed herein lends itself to many and varied applications, such as an apparel buckle, a safety buckle, luggage buckle, etc.

The primary object of the invention is, therefore, to provide a buckle structure which permits quick and positive release of the belt from the buckle.

Another object of the invention is to provide a buckle structure which permits the belt to be arranged in relation to the buckle by edgewise insertion thereof.

Still another object of the invention is to provide a buckle structure in which the buckle comprises spaced plates secured along only one edge, thereby providing a three-sided open slot into which the belt can be inserted edgewise.

A further object of the invention is to provide a buckle structure having three open sides for receiving the belt edgewise and means carried by the buckle for holding the end of the belt in captive relation to the buckle.

Yet another object of the invention is to provide a buckle structure comprising two plates which form a three-sided open slot for receiving the belt edgewise, one of said plates having a ramp or inclined edge against which the free end of the belt is urged to assist in moving it in an upward direction and in quickly and positively releasing the belt from the holding means and the buckle.

Still another object of the invention is to provide a buckle structure for receiving the belt by edgewise insertion thereof, for retaining the belt in captive relation thereto and for providing quick and positive release of the belt from the buckle with the use of a single hand.

And yet another object of the invention is to provide a buckle structure which can be readily fabricated, is inexpensive to manufacture and is readily applicable to many and various uses.

These and other objects and advantages will be apparent to those skilled in the art when the following description is read in conjunction with the accompanying drawings.

Reference is now made to the accompanying drawings in which like reference numerals designate like parts and wherein:

FIG. 1 is a plan view, partially in section, of one embodiment of a three-side open slot buckle structure in which a flexure member is utilized to hold or clamp the belt thereto;

FIG. 2 is a plan view, partially in section, of a variation in the buckle structure disclosed in FIG. 1, wherein the flexure member is shown in a release position and a ramp is arranged with respect thereto;

FIG. 3 is a partial perspective view of the flexure member disclosed in FIGS. 1 and 2;

FIG. 4 is a front elevation of a buckle structure showing the relation of the release ramp to the holding or clamping means;

FIG. 5 is a plan view of the buckle structure disclosed in FIG. 4 and showing an eccentric friction holding or clamping means and the release ramp;

FIG. 6 is a perspective view of a buckle structure particularly adapted for apparel usage and showing the release ramp and relation thereof to the rear plate of the buckle;

FIG. 7 is a vertical section through the buckle structure disclosed in FIG. 6;

FIG. 8 is a perspective view of another embodiment of an apparel buckle showing a structure by which the belt can also be inserted edgewise into relation therewith;

FIG. 9 is a plan view, partially in section, showing a form of holding means for the belt used in conjunction with a buckle structure of the type shown in FIG. 6;

FIG. 10 is a perspective view of an adaptation of the flexure member shown in FIGS. 1–3 as a holding member used in connection with a cylindrical member; and

FIG. 11 is a sectional plan view of the embodiment shown in FIG. 10 and showing the extreme position assumed by the flexure member, as indicated by dotted lines.

Before proceeding with a detailed description of the various embodiments of the invention disclosed in the drawings, it is believed that various terms, as used in the description which follows and the appended claims, should first be defined. The term "belt," as used herein is considered to be synonymous with "strap" or any band, strip or length of leather, fabric, fibre, plastic or similar material used for securing, wrapping, encircling or holding together things or parts of things. Also, the term "plate" is meant to include any member across which the belt can be positioned so it lies in a relatively flat plane, such member being solid or perforated and of any size or shape. It can be readily appreciated that a plate will take many shapes or forms depending on the intended use of the buckle, such as shown in FIGS. 1–5

as compared with FIGS. 6-11. In connection with the description of the belt, it is well known that one end of a belt is usually fixed to the buckle by clamping means carried by the buckle, by fastening means carried by the belt, or by threading the one end through one or more slots in the buckle; this one end is therefore referred to as being secured to the buckle. The free end of the belt is that end extending beyond the buckle and is the portion in excess of that necessary to encircle the article and which is usually held in a loop or loops arranged on the belt adjacent the buckle.

With reference to FIG. 1, buckle **10** comprises a plate **11** with a central portion **12** which is slightly wider than belt **13** which is used with the buckle. At the right-hand end of portion **12**, as viewed in FIG. 1, plate 11 is provided with extending and formed over ears **14** which are at right angles to portion **12**. At this same end, portion **12** is provided with one or more vertical slots **15** through which the end **16** of said belt is threaded to secure it to buckle **10**, said slots providing a means for securing one end of belt **13** to buckle **10**. At the left-hand end of portion **12**, a ledge **17** extends at right angles thereto, see FIG. 3. An aperture **18** is provided in portion **12** and extends from ledge **17** upward, as shown in FIG. 3, for a purpose about to be described. Above aperture **18**, a flat flexure or spring member **19** is secured at one end to portion **12**, such as by a screw or rivet, not shown, passing through hole **20** and portion **12**. The other end of member **19** overlies aperture **18** and has an L-shaped member **21** secured thereto at **22**. The arm **23** of member **21** which extends through aperture **18** lies parallel to and clears ledge **17**. From the description thus far it can be appreciated that aperture **18** must be of a size and shape compatible with the upright arm **24** of member **21**. Likewise, the angular relation between arms **23** and **24** as well as the length of arm **23**, note FIG. 1, will vary in accordance with the location of the surface against which member **19** urges the pin **25** carried by arm **23**. Pin **25** extends vertically from arm **23** and is of a length substantially equivalent to that of the belt width. In the embodiment disclosed in FIGS. 1–3, the peripheral surface of pin **25** can be knurled or serrated to increase the effective holding force, as described hereinafter. Also in this embodiment, a member **26** having a cross section of the shape best shown in FIGS. 1 and 2 can be secured to portion **12** by screws **27** to also increase the effective holding force of pin **25** as exerted by flexure member **19**. If member **26** is not used, then the shape of arm **23** and its angular relation to arm **24** must be changed so belt **13** is clamped between portion **12** and pin **25** rather than between member **26** and pin **25**. Member **19**, member **21** and pin **25** therefore provide a means for engaging belt **13** and holding it in captive relation to buckle **10**.

With the end **16** of belt **13** secured to buckle **10**, as shown in FIG. 1, the belt is placed in relation to the article or articles to be encircled. When the belt is in position, pin **25** is moved to the right, as seen in dotted position in FIG. 1 by insertion of belt **13** with a diagonal movement, that is, downwardly and to the right, between pin **25** and member **26**, and member **19** is flexed to the dotted position indicated in FIG. 1. This movement of belt **13** moves pin **25** in a counterclockwise direction and away from member **26** thereby permitting entry of belt **13**. With the positioning of belt **13**, member **19** attempts to assume its normal position in which pin **25** is against member **26**. Since belt **13** is now arranged between member **26** and pin **25**, member **19** applies a continuous force via pin **25** against belt **13**. If the free end **28** of belt **13** is pulled to the right, as viewed in FIG. 1, pin **25** is moved in the same direction and flexes member **19** thereby permitting belt **13** to be tightened about the article it encircles. However, if the article or articles exert a force tending to move belt **13** toward the left, as viewed in FIG. 1, then the force exerted by member **19** causes pin **25** to move therewith and more force is applied to belt **13** between member **26** and pin **25** to more securely clamp belt **13** therebetween.

Ears **14** are provided with inwardly extending nibs **29** for holding the free end **28** of belt **13**. Loops, not shown, can also be provided adjacent the secured end **16** of belt **13**. To release belt **13** from its captive relation with respect to buckle **10**, the free end **28** is removed from the loops, if provided, and with one hand the free end **28** is pulled to the right and upwardly. This single motion moves pin **25** to the right, thereby flexing member **19** and releasing belt **13** and at the same time removes belt **13** from its relation with respect to buckle **10**. The belt **13** is then completely free.

The embodiment disclosed in FIG. 2 is similar in structure to that just previously described. Buckle **35** comprises a rear plate or member **36** having an ear **37** extending at right angles thereto and a front plate **38** which is spaced from plate **36** and joined thereto by a bottom plate **39**. Plates **36**, **38** and **39** provide a three-sided open slot **40** into which belt **13** can be inserted edgewise. As in FIG. 1, plate **36** is provided at the right hand end with slots (not shown) through which the end **16** of belt **13** is threaded or looped to secure it to buckle **35**. Ear **37** and the right end of plate **39** are provided with nibs **29** for holding the free end **28** of belt **13**. At the left hand end of plate **36**, an aperture **18** is provided to receive the L-shaped member **21** which is fixed to flexure member **19** in the same manner as described with respect to FIG. 1. Pin **25** is also urged against member **26** as previously described. Front plate **38** is provided at the right hand side thereof, as viewed in FIG. 2, with a means for releasing belt **13** from buckle **35** comprising a ramp or surface **41** which is inclined from plate **39** toward pin **25** for a purpose about to be described. While the buckle **35** has been described as being comprised of plate **36**, ear **37**, plate **38** and plate **39**, it is pointed out that such buckle can be formed from a single piece of metal so that the plates are, in effect, integrally arranged to form buckle **35**.

As shown in FIG. 2, pin **25** is moved to the right upon insertion of belt **13** to move said pin away from member **26** which at the same time causes flexing of member **19**. When belt **13** is inserted into slot **40** between member **26** and pin **25**, the free end **28** can be held by nibs **29** and by any loops which are provided. As described above, movement of belt **13** to the right causes pin **25** to move therewith to permit drawing belt **13** tightly around the article or articles it is holding. On the other hand, if belt **13** is pulled to the left, the effective holding force of pin **25** is increased due to flexure member **19**.

To release belt **13**, free end **28** is first withdrawn from the loops and with a slight tug pulled past nibs **29**. When in this position, the free end **28** is pulled to the left toward and against ramp **41**. With this motion, ramp **41** assists in moving belt **13** to the right thereby moving pin **25** to the right and completely and positively disengaging belt **13** from buckle **35** as the belt is moved upwardly along ramp **41** and out of the slot **40**.

In FIGS. 4 and 5, another embodiment of a buckle **45** is shown, this embodiment being similar to that of FIGS. 1–3 with the exception of the means for holding belt **13** in captive relation to the buckle. Buckle **45** comprises a rear plate **46** provided at one end with one or more slots or apertures **47** through which the end **16** of belt **13** is threaded or looped to secure it to the buckle. Plate **46** has an ear **48** extending therefrom at right angles and is joined to front plate **49** by bottom plate **50**. As explained hereinbefore, plate **46**, ear **48**, plate **49** and plate **50** can be stamped from a single piece of metal and when

formed as described, will present a three-sided open slot 51 into which belt 13 can be inserted edgewise.

Plate 49 is formed over to provide a ledge 52, as shown in FIG. 5, ledge 52 and plate 50 serving as bearings between which an eccentric holding member 53 is arranged, holding member 53 comprising the means carried by buckle 45 for holding and engaging belt 13. It will be noted that surface 54 of member 53 is serrated or knurled and is normally urged toward plate 46 or in a counterclockwise direction by spring 55. Member 50 can be urged directly against plate 46 or plate 46 can be formed outwardly, as at 56, to provide an engaging surface. The right hand edge 57 of plate 49 is rolled over and formed at an angle to provide a means for releasing belt 13 from buckle 45 comprising a ramp or surface 58 inclined from plate 49 toward holding member 53. Member 53 is provided with an actuating pin 59 which can be used for moving member 53 away from plate 49 or surface 56.

With the end 16 of belt 13 looped through or otherwise secured to buckle 35 by means of apertures 47, belt 13 is inserted edgewise into slot 51 with a diagonal movement downwardly and to the right thereby moving member 53 in the same direction against the action of spring 55 to permit belt 13 to be inserted edgewise into slot 51 and between plate 46 or surface 56 and member 53. The free end 28 of belt 13 can be pulled to the right to tighten belt 13 about the article or articles it encircles, member 53 moving therewith and permitting free movement of said belt. However, any movement of belt 13 to the left tends to draw member 53 with it in a counterclockwise direction, this movement being aided by the action of spring 55 to increase the clamping force exerted on belt 13 by member 53. As described above, the free end 28 of belt 13 can be held by nibs 29 and any loops provided beyond buckle 45. To release belt 13, the action is the same as described with respect to FIGS. 1–3. The free end 28 of belt 13 is removed from the loops, tugged past nibs 29 and pulled to the left and into engagement against ramp 58. With this movement, belt 13 is moved to the right and at the same time moves member 53 in a clockwise direction to release it from engagement with the belt and permitting the belt to be withdrawn edgewise from slot 51 of buckle 45.

The embodiment of the invention disclosed in FIG. 6 shows the application of a three-sided open buckle 65 to an apparel belt. In this embodiment, buckle 65 can also be blanked from a single plate and then formed as shown. The plate 66 comprises the frame 67 consisting of vertical bars 68 and 69, horizontal bars 70 and 71 formed rearwardly and perpendicular to bars 68 and 69, and the front plate 72. To one skilled in the art, it will be readily apparent that front plate 72 can be formed from the central section blanked from plate 66 which, when formed, is then integral with bar 71 and spaced from the plane determined by bars 68, 69 and 70 to provide a three-sided open slot, as shown in FIG. 7. The means for engaging and holding belt 76 comprises a hook 74 secured in fixed relation centrally of bar 69 for engaging one of the spaced holes 75 in belt 76. The secured end 77 of belt 76 is looped around bar 69 and provided with male and female snap fasteners, generally indicated at 83, to secure the belt to bar 69 in a well-known manner, the loop portion 78 being provided with an aperture 79 through which hook 74 extends. The secured end 77, can carry one or more headed studs 80 for engaging one or more of the holes 75 in the free end 81 of belt 75. Front plate 72 has the right-hand edge inclined from the bottom edge adjacent bar 71 toward the center of slot 73 to form a means for releasing belt 76 from buckle 65 comprising a ramp 82, the ramp or edge 82 being rolled or formed over as shown in FIGS. 6 and 7. An initial or other decor can be provided on the front face of plate 72.

With the belt 76 having its end 77 looped and secured by fasteners 83 to bar 69, the belt is then threaded through the pant loops in the usual manner. The free end 81 is then inserted edgewise into slot 73 between bars 68, 69, 70 and 71 and front plate 72, and drawn tight and to a position in which hook 74 engages the desired aperture 75 to hold end 81 in captive relation to buckle 65. The free end 81 is then laid over stud 80 and pressed inwardly so as to force the head of the stud through the aperture 75 aligned therewith, the spacing between hook 74 and stud 80 being equivalent to the distance between one or more of apertures 75. To release belt 76 from buckle 65, the free end 81 is pulled outwardly to free it from stud 80 and as it is turned back on itself to the left, it is also released from hook 74 and engages ramp 82 which assists in moving the belt vertically and out of slot 73 to completely release belt 76 from buckle 65.

The buckle 90 disclosed in FIG. 8, comprises a frame 91 which includes vertical bars 92 and 93, horizontal bars 94 and 95 and ears 96 and 97 which are formed integral with and spaced from bars 94 and 95 as well as bar 92. Ears 96 and 97 are spaced from each other in a vertical direction to form a space or opening 98 and each have a ramp or edge 99 which is inclined toward said opening. Since ears 96 and 97 are spaced from their respective bars 94 and 95, each effectively forms a three-sided open slot which is formed by ear 96 or 97, the integral portion joining ears 96 and 97 to their respective bars 94 and 95, and the plane determined by bars 92, 93, 94 and 95. As in FIG. 6, bar 93 is provided with a centrally fixed hook 74, end 77 being looped around bar 93 and secured thereto, as described above. To secure the free end 81 of belt 76 to buckle 90, the belt is pinched together, the edges inserted through opening 98, and then released, the resiliency of the belt returning it to its normal flat condition with the belt then arranged between ears 96 and 97 and frame 91. The belt is then pulled to the right until the desired hole 75 is engaged by hook 74 and the free end is then pushed against stud 80 to engage a hole and hold it against the secured end 77.

To release belt 76 from its captive relation with buckle 90, free end 81 is pulled to the left to release it from stud 80 and hook 74. As this movement is continued, it is brought into engagement with ramps 99. If the belt is then twisted upwardly as it is still pulled to the left, the lower edge rides along the ramp 99 of ear 97 until it reaches the opening 98 at which time the belt will also slide out from under ear 96. If the belt is twisted downwardly, the upper edge engages the ramp 99 of ear 96 and the same result is accomplished; namely, the belt is quickly and positively released.

The buckle disclosure shown in FIG. 9 is an adaptation of a belt structure disclosed in my copending application Serial No. 857,669, filed December 7, 1959, to a three-sided open slot buckle 105. Belt 106 is provided at its secured end 107 with spaced fasteners 108 and with an aperture 109 displaced from the crest of loop 110 which is formed when end 107 is secured to buckle 105. Buckle 105 comprises a rear plate 111 provided with a slot 112 to form a strap or bar 113 around which end 107 of belt 106 is looped and secured, a front plate 114 and a portion 115 integral with plates 111 and 114. As shown in FIG. 9, plates 111 and 114 are spaced from one another to provide a three-sided open slot 116 therebetween into which belt 106 can be inserted edgewise, plate 114 being provided with ramp 117 which is formed over and inclined from portion 115 toward the center of slot 116 to provide a means for releasing belt 106 from buckle 105. Tongue 118 is pivotally mounted on strap 113 formed by the end of plate 111 and slot 112, extends through aperture 109 and lies along the rear surface of plate 111, the nose 119 of tongue 118 extending through a slot 120 in plate 111 to engage one of the holes 121 in the free end 122 of belt 106, so as to hold said free end in captive relation with respect to buckle 105.

As described in the above-mentioned application, aperture 109 is arranged and displaced with respect to loop

110 so as to engage tongue 118 to the left of strap 113 as shown in FIG. 9. By so arranging aperture 109, the edge thereof engaging tongue 118 tends to move said tongue in a counterclockwise direction and against plate 111 due to the inherent resiliency of loop 110. When the belt 106 is inserted edgewise into slot 116, that is between plates 111 and 114, the lower edge engages nose 119 and moves it in a clockwise direction, as indicated by the dotted line position in FIG. 9, thereby permitting the belt to be positioned aganist portion 115. Loop 110 is flexed as tongue 118 is moved by belt 106 and tends to return nose 119 to its normal position. Until a hole 121 in belt 106 is aligned with aperture 120, loop 110 holds nose 119 in aperture 120 and against the rear surface of belt 105. As belt 106 is moved to the right to tighten it about the article encircled, nose 119 will be moved into each hole 121 by loop 110 and cammed out of each hole 121 by the edge thereof until the desired hole 121 is aligned with and engaged by nose 119 to hold belt 106 in captive relation to buckle 105. The free end 122 is then threaded through the strap or loop 123 to hold it in a well-known manner.

To release belt 106 from buckle 105, free end 122 is first removed from under loop 123 and then folded back and pulled to the left and against ramp 117. When belt 106 engages ramp 117, the portion engaged by tongue 118 is moved to the right thereby releasing nose 119. With further movement ramp 117 moves belt 106 upward and out of slot 116 to completely and postively release it from buckle 105.

FIGS. 10 and 11 disclose an embodiment in which a flexure member is utilized in conjunction with a tubular member to hold a belt in captive relation. Tube 125 can be one of the legs of a tripod or similar article in which one end of a belt 126 is secured to one leg, wrapped around the legs, and the other end 127 is then secured as will now be described. A flexure member or flat leaf spring 128 is secured at one end by a rivet or screw 129 to tube 125. The free end lies over an aperture 130 and carries an L-shaped member 131, one leg 132 of which extends through aperture 130 and diametrically across tube 125 and through a peripherally extended aperture 133 and the other leg 134 of which extends parallel to the axis of tube 130 and is spaced slightly from said tube. Normally, the parts just described assume the positions shown in full lines in FIG. 11. To clamp the end 127 of belt 126, member 131 is moved in a clockwise direction to a position as shown in dotted lines in FIG. 11. In this position, member 128 is flexed or twisted about its fixed end and tends to return member 131 to its normal position. Since tube 125 is curved, the space between leg 134 and the periphery of tube 125 increases as member 131 is moved in a clockwise direction. In this position, end 127 of the belt can then be inserted edgewise between leg 134 and tube 125 and leg 134 can then be released. Member 128 will urge leg 134 toward its normal position, but since leg 134 is normally spaced from tube 125 by a distance less than the thickness of the belt, it cannot fully return and, hence, clamps belt 126 to tube 125. As is evident from FIG. 11, if belt 126 is pulled downwardly, the clamping action is increased and if it is moved upward it carries member 130 therewith to release the clamping action, thereby permitting belt 126 to be drawn tighter. To release belt 126, it is pulled upward, as viewed in FIG. 11, and carries member 131 with it. When member 131 is sufficiently removed from tube 125, movement of belt 126 parallel to the axis of the tube will completely release end 127 of belt 126.

In each of the embodiments disclosed and described herein, it is evident that the three-sided open slot formed in each embodiment by the plates or buckle frame and front plate in which one is spaced from the other and the belt is inserted edgewise therein and into relationship with the buckle provides a unique and novel structure. Also, the means for securing the free end of the belt in captive relation to the buckle is in each instance carried by the buckle and can vary in its structure, that is, a positive securing arrangement can be used as well as a friction arrangement. To release the belt from the buckle in the disclosed embodiments, only one hand is needed to obtain a complete and positive release. It is also evident from the disclosures that the buckle can be made in a variety of forms with solid front and rear plates, a frame as a rear plate and, though not disclosed, the front plate can also assume a shape and form other than being solid. Since many modifications of a buckle, other than those disclosed, will be apparent to those skilled in the art, the invention is not to be limited to the disclosed embodiments but is of a scope as defined by the appended claims.

Having now particularly described my invention, what I desire to secure by Letters Patent of the United States and what I claim is:

1. A buckle comprising a plate having means at one end thereof for securing one end of a belt thereto, a second plate arranged in spaced relation to said first mentioned plate and joined thereto along only one edge to provide an open slot between said plates into which said belt can be inserted edgewise, means carried by said buckle and arranged inwardly from the other end of said buckle for engaging said belt when inserted between said plates and holding said belt in captive relation with respect to said buckle, and linear release means arranged along the edge of said second plate adjacent the secured end of said belt for engaging the portion of the surface of said belt facing said second plate and first inserted in said slot when the other end of said belt is folded back on itself and a force is applied thereto to convert said force into components which release said other end of said belt from said buckle by moving said belt out of said slot.

2. A buckle comprising a plate having means at one end thereof for securing one end of a belt thereto, a second plate arranged in spaced relation to said first-mentioned plate and joined thereto along only one edge to provide an open slot between said plates into which said belt can be inserted edgewise, means carried by said buckle and arranged inwardly from the other end of said buckle for engaging said belt when inserted between said plates and holding said belt in captive relation with respect to said buckle, and a linear ramp arranged along the edge of said second plate adjacent said belt securing means for engaging the portion of the surface of said belt facing said second plate and first inserted in said slot when the other end of said belt is folded back on itself and a force is applied thereto to convert said force into components which release said other end of said belt from said buckle by moving said belt out of said slot.

3. A buckle in accordance with claim 2 in which said ramp is formed integral with said second plate and is inclined in a straight line from the junction of said second plate with the bottom of the slot at the end adjacent the secured end of said belt toward the center of the open slot.

4. A buckle comprising a plate having means at one end thereof for securing one end of a belt thereto, a second plate arranged in spaced relation to said first-mentioned plate and joined thereto along only one edge to provide a slot having an open top, a forward open end and a rearward open end into which said belt can be inserted edgewise, said second plate being shorter in a longitudinal direction than said first-mentioned plate, means carried by said buckle and arranged inwardly from said forward open end for engaging said belt when inserted through said open top and between said plates and holding said belt in captive relation with respect to said buckle, and a ramp formed integral with said second plate along

the rearward open end and inclined in a straight line from the junction of said second plate with the bottom of said slot toward the center of said open top for engaging the portion of the surface of said belt facing said second plate and first inserted in said slot when the other end of said belt is folded back on itself and a force is applied thereto to convert said force into components which release the other end of said belt from said buckle by moving said belt out of said slot.

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