Dec. 13, 1966 W. ROSENZWEIG 3,290,696

STRAPS

Filed July 16, 1964 2 Sheets-Sheet 1

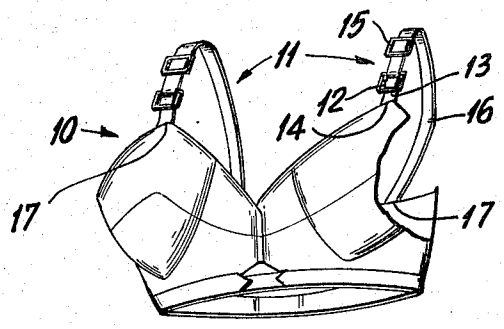


FIG. 1

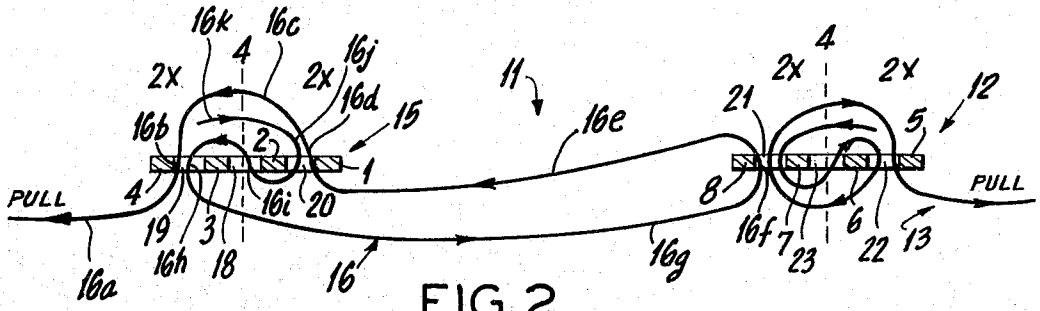


FIG. 2

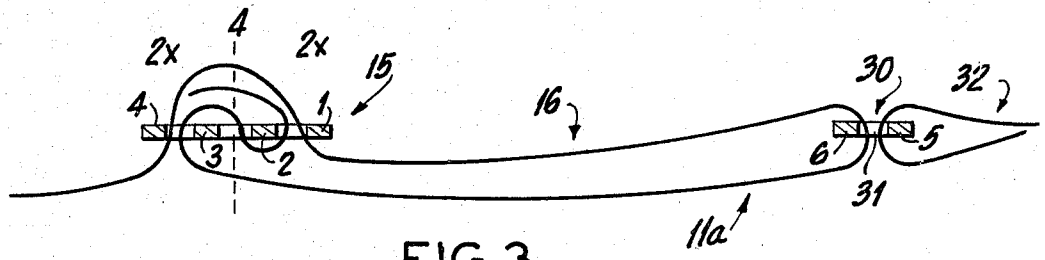


FIG. 3

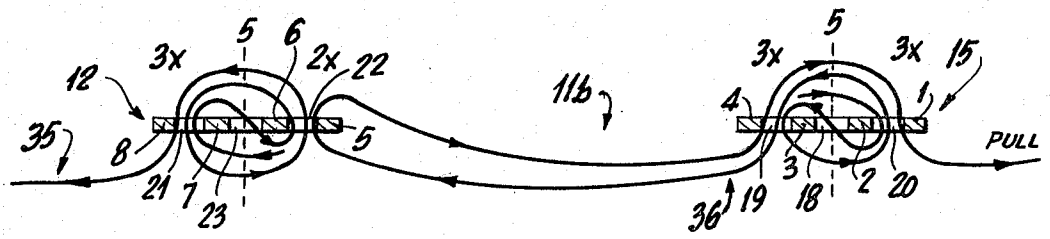


FIG. 4

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STRAPS

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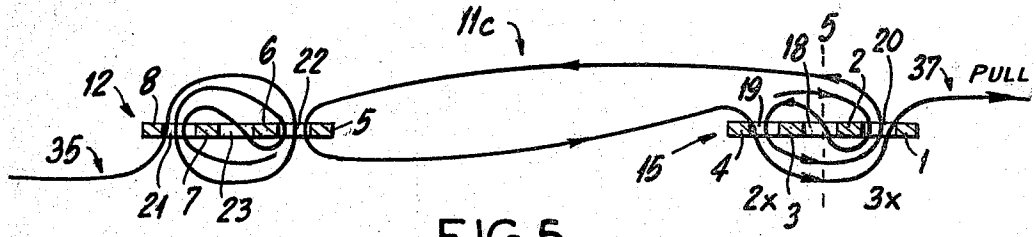


FIG. 5

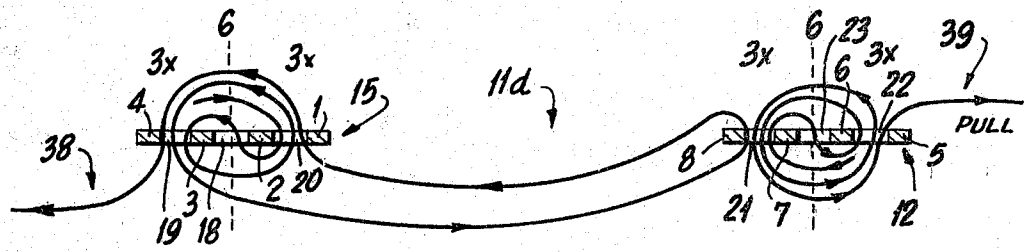


FIG. 6

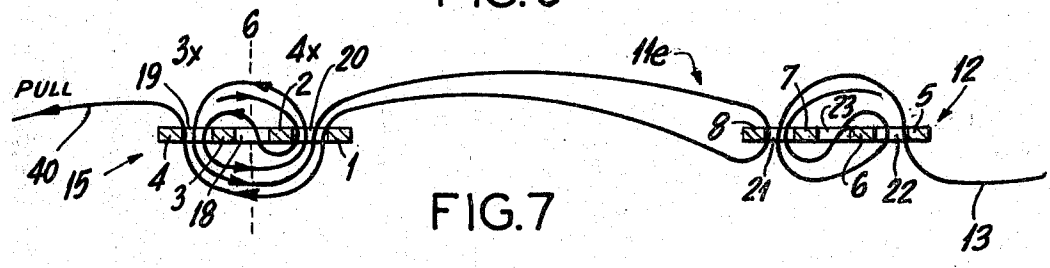


FIG. 7

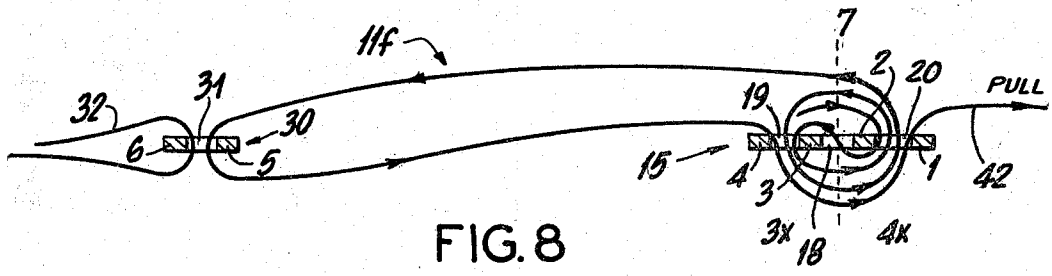


FIG. 8

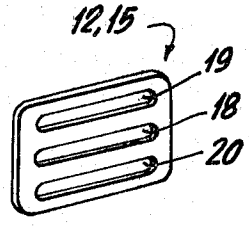


FIG. 9

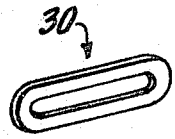


FIG. 10

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3,290,696

STRAPS

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Filed July 16, 1964, Ser. No. 383,039
20 Claims. (Cl. 2—323)

This invention relates to straps. It is particularly directed to adjustable ribbon straps for garments, brassieres and other articles, for example straps employing two ribbons and two buckles.

An object of this invention is to provide a strap of the character described in which a ribbon has a portion adjustably threaded through a buckle and a terminal end locked to the buckle, without stitching, laminating or otherwise attaching the end of the ribbon to other parts thereof and without use of beads, folds, clips or necessity for any bulk at the terminal end of the ribbon to prevent it being pulled through the buckle.

Another object of this invention is to provide a strap of the character described in which a terminal end of the ribbon is self-locking to the buckle without any loose end of the ribbon being exposed or hanging out.

Still another object of this invention is to provide a strap of the character described, in which one portion of the ribbon is threaded through the buckle and is adjustable lengthwise relative to the buckle, and one end of the ribbon is locked to the buckle, the arrangement being such that to adjust the strap lengthwise, it is not necessary for one of the bars of the buckle to be open, to prevent removal of the ribbon through such opening in the bar.

Still another object of this invention is to provide a strap of the character described in which one terminal end of the ribbon is disposed between two layers of ribbon, and in which a pull on the ribbon will cause the terminal end of the ribbon to be pulled in one direction while the pull on said two layers of ribbon is in an opposite direction, thereby providing for a tight and effective lock for the ribbon end. With increasing pull, the layers tighten around the buckle and the friction increases, thus producing an even tighter grip on said loose end.

A still further object of this invention is to provide a strap of the character described in which the loose end of the ribbon is anchored between two ribbon layers and does not protrude outside of the buckle, or extend behind the buckle and is not doubled up by stitching or banding to such a thickness that it cannot slip through the slot of the buckle, and without necessity for prongs or clips engaging the ribbon end.

Yet a further object of this invention is to provide an anchorage connection between a ribbon and a buckle employable in a variety of shoulder or other straps and which will provide for secure locking with a minimum of threading operations to save labor and material, and in which the end of the ribbon is covered with one or more layers, and in which a four bar, three slot buckle is employed, with one threading of the ribbon passing through the middle slot and with two or more threadings of the ribbon passing through the outer slots.

A still further object of the invention is to provide a strong and durable strap of the character described, which shall be economical as to amount of ribbon used, efficient as to time required to manufacture the strap from its components, and which shall be easy to assemble, and yet practical to a high degree.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists in the features of construction, combinations of elements, and arrangement of parts, which will be exemplified in the construction

hereinafter described, and of which the scope of invention will be indicated in the following claims.

In the accompanying drawings in which is shown an illustrative embodiment of this invention,

FIG. 1 is a perspective view of a garment or brassiere provided with a strap embodying the invention;

FIG. 2 is a diagrammatic view of a portion of the strap, and indicating the number of bars of each buckle, the direction of pull of the ribbon, the number of layers at the middle slot of the adjustable buckle, and the number of layers threaded through each of the end slots of the adjustable buckle;

FIGS. 3 to 8 are views similar to FIG. 2, but illustrating various modifications;

FIG. 9 is a perspective view of a four bar, three slot buckle employed in each of the straps of FIGS. 2–8; and

FIG. 10 is a perspective view of a two bar, one slot buckle employed in the modifications of FIGS. 3 and 8.

Referring now in detail to the drawing, and particularly to FIGS. 1, 2 and 9 thereof, **10** designates a garment, here shown in the form of a brassiere and provided with a pair of shoulder straps **11** embodying the invention. It will be understood that the straps **11** may be applied to slips or other garments and to other articles, and furthermore that the invention may be embodied in straps other than shoulder straps.

Each strap **11** may comprise an anchorage buckle **12** connected by a ribbon **13** to the front of the brassiere **10**, as by stitching thereto at **14**; and a second or adjustable buckle **15** through which is threaded a second ribbon **16**, stitched to the rear of the brassiere as at **17** and looped through buckle **13** in the manner to be described hereinafter in detail.

Buckles **12** and **15** may both be four bar buckles with a middle slot **18** and end slots **19** and **20**. The bars of the buckle may all be closed bars in contradistinction to open bars employed in some buckles used heretofore.

The buckle **15** has its bars numbered **1**, **2**, **3**, and **4** in FIG. 2. The arrows in FIG. 2 indicate direction of pull on the ribbons **13** and **16**. In said figure, buckle **12** which is also a four bar buckle, has its bars numbered **5**, **6**, **7** and **8**.

The ribbon **16** has a portion **16*a*** (the outer end of which is stitched to the rear of the brassiere at **17**) from which extends upwardly (from the body side outwardly) through outer slot **19**, a portion **16*b***. Extending from portion **16*b*** is a portion **16*c*** straddling bars **3** and **2** of the buckle, and from which extends a portion **16*a*** passing down (toward the body) through slot **20** and under bar **1** of the buckle. Extending from portion **16*d*** is a portion **16*e*** passing over the outside of bar B of buckle **12**. Extending from portion **16*e*** is a portion **16*f*** passing through outer slot **21** of buckle **12**, and back under bar **8** of said buckle. Extending from portion **16*f***, is a portion **16*g*** passing back to and beneath buckle **15**. Extending from portion **16*g*** is a portion **16*h*** passing up through slot **19** and over bar **3** of buckle **15**. Extending from portion **16*h*** is a portion **16*i*** passing down through slot **18** and beneath bar **2** of buckle **15**. Extending from portion **16*i*** is a portion **16*j*** passing up through slot **20** and terminating in a portion **16*k*** passing above bars **2** and **3** and between portions **16*c*** and **16*h***.

The direction of pull on ribbon **16** is indicated by arrows in FIG. 2. It will be seen that the terminal portion **16*k*** is pulled in a direction opposite to the direction of pull on ribbon portions **16*c***, **16*h*** which are located on opposite sides thereof. A pull on buckle **12** will cause the terminal end of the ribbon to be locked to buckle **15**. It will be noted that the terminal end **16*k*** does not hang out and is not exposed. Furthermore, said terminal end is not drubbed over or laminated or sewed. No clips or prongs are used.

Yet the strap is adjustable, since portions 16*c* can be pulled through slots 19 and 20 of the buckle 15.

Ribbon 13 has one end stitched at 14 to the front of the brassiere. It then passes beneath bar 5 of buckle 12 up through slot 22 thereof, and over bars 6, 7 and then passes down through slot 21 underneath the buckle, straddling bars 7, 6 and passes up through slot 22 and over bar 6 and down through the middle slot 23 of buckle 12, and around and underneath bar 7 and up through slot 21 and over bar 7, slot 23 and bar 6. The terminal end of the ribbon is disposed between a covering portion of the ribbon and the portion of the ribbon that passes around the outer side of bar 6. A pull on the end of ribbon 13 to the right (FIG. 2) will cause a pull on the terminal end of the ribbon 13 to the left, while portions of said ribbon on opposite sides thereof are pulled to the right (looking at FIG. 2).

Here again the loose end or terminal end of ribbon 13 is locked, without use of prongs, laminations, doubling over of the ribbon end, stitching, clips or any other devices; and said terminal end is not exposed and does not hang out.

It will be noted that there are four layers of ribbons through and on opposite sides of middle slots 18 and 23, as indicated by the vertical dotted lines through said slots, and the number "4" at upper ends of said dotted lines.

It will also be noted that two layers of ribbon 16 pass through each of slots 19 and 20, and two layers of ribbon 13 pass through each of slots 21, 22, as indicated by notations "2*x*" above said slots.

In FIG. 3 a modified strap 11*a* comprises said ribbon 16 and buckle 15, same as in FIG. 2. However, buckle 12 is replaced by a two bar, one slot buckle 30 having bars 5, 6 and a single slot 31. Portion 16*f* of ribbon 16 passes down through slot 31 and hence only one bar 6 of buckle 30 is looped.

Ribbon 13 of FIG. 2 is replaced by a looped ribbon 32. The ends of ribbon 32 are stitched to the front of the brassiere where ribbon 13 is stitched at 14. Ribbon 32 passes around bar 5 and through slot 31 of buckle 30.

In FIG. 4 there is shown a further modified strap 11*b*. Said strap 11*b* comprises an anchoring buckle 12. A ribbon 35 is stitched to the rear of the brassiere. Said ribbon 35 passes under bar 8, up through slot 21, over and around bars 7, 6 and slot 23, then down through slot 22, then under bars 6, 7 and slot 23, then up through slot 21, then over bars 7, 6 then down through slot 22, then under bar 6, up through slot 23, over bar 7, down through slot 21 and underneath bar 7, slot 23 and bar 6. The vertical dotted line through the middle slot 23 passes through five layers. Here again the arrows indicated direction of pull. The terminal end of ribbon 35 pulls in direction opposite to direction of pull of ribbon portions on opposite sides thereof.

In FIG. 4, ribbon 16 is replaced by a ribbon 36. One end of ribbon 36 is stitched to the rear of the brassiere. Said ribbon then passes under bar 1 of a buckle 15, up through slot 20 thereof, then over bar 2, slot 18 and bar 3, then down through slot 19 and under bar 4, then passes to buckle 12, around and over bar 5 thereof and down through slot 22, then under said bar 5 and back to buckle 15, passing beneath bar 4 and up through slot 19, then over bar 3, slot 18 and bar 2, then down through slot 20, then underneath bar 2, slot 18 and bar 3, then up through slot 19, then over bar 3, then down through slot 18, then under and around bar 2, then up through slot 20, then over bar 2, slot 18 and bar 3. This construction offers the advantage of having two layers of ribbon on top of the loose end which further prevents accidental loosening in use. The vertical dotted line through slot 18 passes through five layers of ribbon as indicated in FIG. 4. Also three layers of ribbon 36 pass through slot 20, and three layers thereof pass through slot 19. Buckle 12 of FIG. 4 and ribbon 35 may be replaced, if desired, by buckle 30 and ribbon 32 of FIG. 3, or by buckle 12 and ribbon 13 of FIG. 2.

In FIG. 5, buckle 12 and ribbon 35 can be the same as in FIG. 4, and can be replaced by buckle 30 and ribbon 32 of FIG. 3, or buckle 12 and ribbon 13 of FIG. 2. The strap 11*c* of FIG. 5 comprises a ribbon 37, one end of which is attached to the rear of the brassiere. The ribbon then passes over bar 1 of a buckle 15, and down through slot 20, under bar 2, slot 18 and bar 3 of said buckle, then up through slot 19 then over to buckle 12, passing beneath bar 5 thereof and up through slot 22 and over bar 5 and back to buckle 15, passing over bar 4, slot 19, bar 3, slot 18 and bar 2 of said buckle, then down through slot 20, then beneath bar 2, slot 18 and bar 3, then up through slot 19, then over bar 3, then down through slot 18, then beneath and under bar 2, then up through slot 20, then over bar 2, slot 18 and bar 3. This construction has an advantage over the construction of FIG. 4, because of threading only two times through slot 19; but it has a disadvantage over the construction of FIG. 4, because of having only one layer of ribbon on top of the loose or terminal end of the ribbon.

The dotted vertical line through slot 18 of FIG. 5 indicates that it goes through five layers. This means that if the ribbon were cut down through the middle slot of buckle 15 of strap 11*c*, five layers of ribbon would be cut.

FIG. 6 shows the possibility of threading with six layers at the middle slot to give extra insurance against slippage, and has the additional advantage that the top layer moves in the same direction as an intermediate layer which overlies the loose end, as indicated by the arrows.

Thus in FIG. 6, there is shown a strap 11*d*. This strap comprises a buckle 15 carrying ribbon 38 looped onto a buckle 12 carrying a ribbon 39.

Ribbon 38 is attached at one end to the rear of the garment or to any other article. It then passes under bar 4 of buckle 15 up through slot 19, over bar 3, slot 18 and bar 2, down through slot 20, over to buckle 12, over bar 8 thereof, down through slot 21, then back to buckle 15, passing beneath bar 1, slot 20, bar 2, slot 18 and bar 3, then up through slot 19, then over bar 3, slot 18 and bar 2, then down through slot 20, then underneath bar 2, slot 18 and bar 3, then up through slot 19, then over bar 3, then down through slot 18, then beneath bar 2 and up through slot 20, then over slot 18 and bar 3. A dotted vertical line through slot 18 passes through six layers of ribbon. Also both layers of ribbon which overlie the terminal end of the ribbon, pull in the same direction and in a direction opposite to the direction of pull of said terminal end, all as indicated by the arrows in FIG. 6. Here also we have three layers passing through each of slots 19 and 20.

Ribbon 39 of FIG. 6 passes from its anchored end over bar 5 of buckle 12, down through slot 22, under bar 6, slot 23 and bar 7 of said buckle, then up through slot 21, then over bar 7, slot 23 and bar 6, and down through slot 22, then under bar 6, slot 23 and bar 7, then up through slot 21, then over bar 7, slot 23 and bar 6 and down through slot 22, then under bar 6, then up through slot 23, then over bar 7, then down through slot 21, then under bar 7, slot 23 and bar 6.

Here, likewise, a vertical line through slot 23 passes through six layers of ribbon and three layers of ribbon pass through each of the end slots 21, 22 of buckle 12. Ribbon 39 may be replaced by buckle 12 and ribbon 35 of FIGS. 4 and 5; or by buckle 30 and ribbon 32 of FIG. 3; or by buckle 12 and ribbon 13 of FIG. 2.

FIG. 7 shows a strap 11*e* embodying a still further modification of the invention. In FIG. 7, a buckle 15, carries a ribbon 40, looped around a second buckle 12. The anchored or attached end of ribbon 40 passes over bar 4 of buckle 15, down through slot 19, under bar 3, slot 18 and bar 2, and up through slot 20, then over to buckle 12, passing under bar 8 thereof, then up through slot 21 and then back over bar 8 to buckle 15, passing

over bar 1, down through slot 20, then under bar 2, slot 18 and bar 3, then up through slot 19, then over bar 3, slot 18 and bar 2, then down through slot 20, then under bar 2, slot 18 and bar 3, then up through slot 19, then over bar 3, then down through the middle slot 18, then under bar 2, then up through slot 20, then over bar 2, slot 18 and bar 3. A vertical dotted line through slot 18 cuts through six layers. Four layers pass through slot 20 and three layers pass through slot 19.

A ribbon 13 is carried by buckle 12 of strap 11*e*. However, buckle 12 and ribbon 13 may be replaced by buckle 30 and ribbon 32 of FIG. 3, or by buckle 12 and ribbon 35 of FIG. 4 or by buckle 12 and ribbon 39 of FIG. 6.

FIG. 8 shows a modified strap 11*f* with a seven layered buckle which is more costly to make, but possible to thread.

Strap 11*f* thus comprises a buckle 15 carrying a ribbon 42 looped to a buckle 30 carrying a ribbon 32.

The attached end of ribbon 42 passes over bar 1, down through slot 20, under bar 2, slot 18 and bar 3, then up through slit 19 then over to buckle 30, passing under bar 5 and up through slot 3 and over bar 5 and back to buckle 15, passing over bar 4, slot 19, bar 3, slot 18, bar 2 and down through slot 20, then under bar 2, slot 18 and bar 3, then up through slot 19, then over bar 3, slot 18 and bar 2, then down through slot 20, then under bar 2, slot 18 and bar 3, then up through slot 19, then over bar 3, then down through middle slot 18, then under bar 2, then up through slot 20, then over bar 2, slot 18 and bar 3.

A vertical dotted line through slot 18 passes through seven layers. However, four layers pass through slot 20 and three layers through slot 19.

Buckle 30 and its ribbon 32 may be replaced by buckle 12, and ribbon 13 of FIG. 2; by buckle 12 and ribbon 35 of FIG. 4, or by buckle 12 and ribbon 39 of FIG. 6.

It will thus be seen that there is provided an apparatus in which the several objects of this invention are achieved, and which is well adapted to meet the conditions of practical use.

As possible embodiments might be made of the above invention, and as various changes might be made in the embodiment above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawings, is to be interpreted as illustrative and not in a limiting sense.

I claim:

1. A strap comprising a buckle having opposite sides and comprising two middle bars and two outer bars and forming a middle slot between the two middle bars, and an outer slot between each of said two middle bars and said two outer bars, respectively, a ribbon having a first portion extending through one outer slot from one side of the buckle to the other side thereof, and over said middle bars and middle slot, at said other side of the buckle, a second portion extending from the first portion through the other outer slot, from said other side of the buckle to said one side of the buckle, and over said middle bars and middle slot at said one side, a third portion extending through said one outer slot from said one side of the buckle to said other side thereof and over the middle bar which is adjacent said one outer slot, at said other side of said buckle, a fourth portion extending through said middle slot and over the other middle bar at said one side of said buckle, a fifth portion extending through the other outer slot from said one side to said other side of said buckle, and terminating in a sixth portion extending over said middle bars and middle slot, at said other side of said buckle.

2. The combination of claim 1, a second buckle having a plurality of bars and one or more slots, a second ribbon passing through a slot of the second buckle, and said first mentioned ribbon having a portion looped around one of the bars of said second buckle and through said slot thereof.

3. The combination of claim 1, a second buckle having at least one bar, and said ribbon having a portion looped around said bar.

4. The combination of claim 1, an anchor means, and said ribbon having a portion looped about said anchor means.

5. The combination of claim 1, an anchor means, and said ribbon having an intermediate portion disposed between the portion that passes through said other outer slot, from said other side to said one side of the buckle, and said portion that passes over said middle bars and middle slot at said first side of the buckle, said intermediate portion being looped about said anchor means.

6. The combination of claim 1, said ribbon having a portion from which the first portion extends, and passing around said middle bars and middle slot at said first side of said buckle and passing through said other outer slot.

7. The combination of claim 1, an anchor means, and said ribbon having a portion from which said first portion extends, and looped about said anchor means, and passing through an outer slot in said buckle.

8. The combination of claim 1, an anchor means, and said ribbon having a portion from which said first portion extends, and looped about said anchor means, and passing through said one of said outer slots and over said middle bars and middle slot at said other side of said buckle and through said other outer slot.

9. The combination of claim 1, an anchor means, and said first portion of said ribbon having an intermediate portion looped about said anchor means.

10. The combination of claim 1, an anchor means, and said ribbon having a portion from which the first portion extends and looped about said anchor means, and passing through said other outer slot from said one side to said other side of said buckle, and over said middle bars and middle slot at said other side of said buckle, and through said one outer slot, from said other side to said one side of said buckle.

11. The combination of claim 1, an anchor means, and said ribbon having a portion from which said first portion extends, and extending around said middle bars and middle slot at said one side of said buckle and passing through said other outer slot from said one side to said other side of said buckle, and being looped about said anchor means, and passing through said other outer slot from said other side to said one side, and passing around said middle bars and middle slot at said one side of said buckle and passing through said one outer slot from said one side to said other side of said buckle.

12. The combination of claim 1, an anchor means, said ribbon having a portion from which said first portion extends, and extending over said middle bars and middle slot at said one side of said buckle and passing through said other outer slot from said one side to said other side of said buckle, and being looped about said anchor means, and passing through said one outer slot from said other side to said one side and passing over said middle bars and middle slot at said one side of said buckle, and passing through said other outer slot from said one side to said other side of said buckle.

13. The combination of claim 1, a second buckle having opposite sides and comprising two middle bars and two outer bars and forming a middle slot between said two middle bars, and an outer slot between each of said two middle bars and said two outer bars, respectively, a second ribbon having a first portion extending through one outer slot of said second buckle from one side to the other side thereof, and over said middle bars and middle slot, at said other side of said second buckle, a second portion extending through the other outer slot from said other side to said one side of said second buckle, and over said middle bars and middle slot at said one side of said second buckle, a third portion extending through said one outer slot from said one side to said other side of said second buckle, and over the middle

ar which is adjacent said one outer slot, at said other side f said second buckle, a fourth portion extending through aid middle slot and over the other of said middle bars t said one side of said second buckle, a fifth portion xtending through said other outer slot from said one ide to said other side of said second buckle, and terminat- ig in a sixth portion extending over said middle bars nd middle slot at said other side of said second buckle, nd said first ribbon having a portion looped around n outer bar of said second buckle.

14. A strap comprising a buckle having first and second ides and comprising first, second, third and fourth spaced onsecutive bars, forming a first slot between the first nd second bars, a second slot between the second and hird bars, and a third slot between the third and fourth ars, a ribbon having a pull end and a portion extending rom the pull end, and passing through said first slot from he first side to the second side of the buckle, over the econd bar, second slot and third bar at said second side, hrough said third slot from the second side to said first ide of the buckle, over the third bar, second slot and sec- nd bar at said first side of said buckle, through said rst slot from the first side to said second side, over aid second bar at said second side, through said second ot to said first side, over said third bar at said first side, hrough said third slot to said second side of said buckle nd terminating in a portion extending over said third ar, second slot and second bar at said second side of said uckle.

15. The combination of claim 13, a second buckle, and aid ribbon having a portion looped around a portion of aid second buckle, and a portion adjustably threaded hrough the first and third slots of said first mentioned uckle.

16. A strap comprising a four bar three slot buckle aving two outer bars and two middle bars, and two outer lots and a middle slot, a ribbon having a first portion hreaded through an end slot and a second portion extend- ig from one side of the first portion and overlying the iddle bars and the middle slot, a third portion extending rom the second portion and passing through the other nd slot, a fourth portion extending from the third portion nd underlying the middle bars and middle slot, a fifth ortion extending from the fourth portion and passing hrough one end slot, a sixth portion extending from said fth portion and overlying one of said middle bars, a eventh portion extending from said sixth portion and assing through the middle slot, an eighth portion extend-

ing from said seventh portion and underlying the other middle bar, and a ninth portion extending from said eighth portion and overlying said other middle bar and being interposed between said second portion and said sixth portion.

17. The combination of claim 16, said ribbon having a tenth portion extending from the other side of said first portion and underlying said fourth portion.

18. The combination of claim 17, an anchor means, and a looped portion extending from said tenth portion and looped about said anchor means.

19. The combination of claim 18, and an eleventh portion extending from said looped portion and threaded said end slots.

20. A strap comprising a first four bar buckle comprising a pair of end bars, a pair of middle bars and having a pair of end slots and a middle slot, a second buckle having at least a pair of bars and at least one slot, a ribbon having a first portion threaded through one end slot of the first buckle, a second portion extending from said first portion and overlying said middle bars and middle slot, a third portion extending from said second portion and passing through said other end slot, a fourth portion extending from said third portion and looped about a bar of said second buckle and threaded through a slot thereof, a fifth portion extending from said fourth portion and underlying said middle bars and middle slot, a sixth portion extending from said fifth portion and through said one end slot, a seventh portion extending from said sixth portion and overlying one middle bar, an eighth portion extending from said seventh portion and passing through said middle slot, a ninth portion extending from said eighth portion and passing through said other end slot, and a tenth portion extending from said ninth portion and overlying said other middle bar and sandwiched between said second and seventh portions, and a second ribbon anchored to said second buckle and threaded through a slot thereof.

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JORDAN FRANKLIN, *Primary Examiner.*

G. V. LARKIN, *Assistant Examiner.*